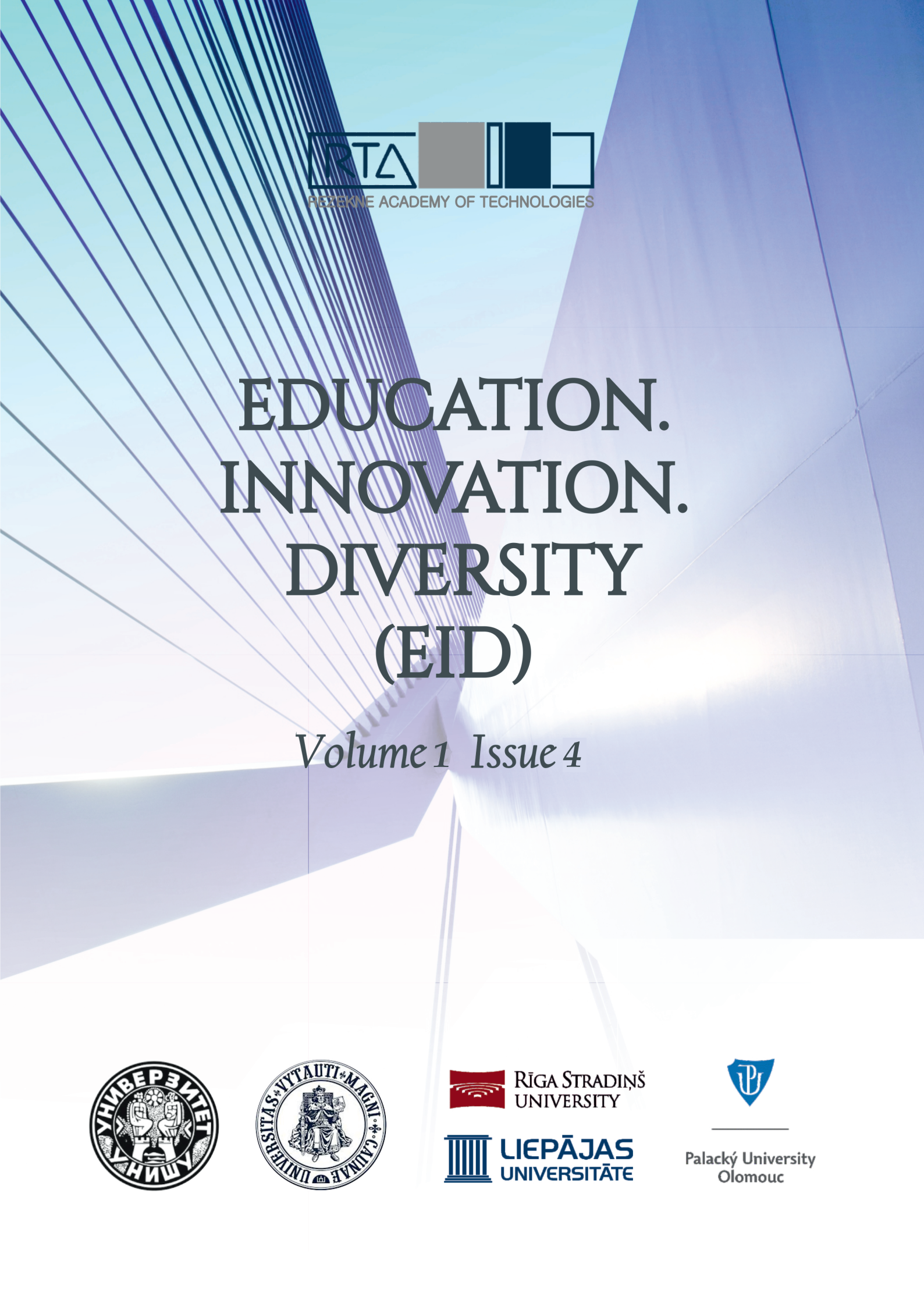
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EID is an international, periodical scientific journal publishing original research which is of general significance to the education research community and which comes from a wide range of areas of education research and related disciplines.
This journal operates a blind review process. All contributions are typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. Every peer-reviewed research article appearing in this journal will be published open access.

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CONTENT

PREFACE

Dear authors and readers,

I am delighted to present the new issue of the scientific e-journal "Education. Innovation. Diversity" (EID). The journal is the result of scientific cooperation between several universities - Rezekne Academy of Technologies (Latvia), Liepaja University (Latvia), Palacký University Olomouc (Czech Republic), Riga Stradins University (Latvia), University of Niš (Serbia) and Vytautas Magnus University (Lithuania). EID aims to make major research and new findings of broad importance widely accessible.

It is a real pleasure that the number of countries where the journal is being read and from where we receive messages is increasing with each issue. I hope that this issue will be of interest to many readers, as the research topics discussed and the geography of the authors are wide. The authors from South Africa focus on the development of higher education academic staff and the analysis of potential obstacles (Zwelijongile Gaylard Baleni, Andrea Mqondisi Buka, Clever Ndebele) and the education management issues (Hennades Tabe Tabe, Christo Van Wyk, Clever Ndebele). The author from Indonesia (I Wayan Widana) examines a quality of education that is inconceivable without self-regulated learning and critical reasoning. The authors from Cameroun (Mfiarak À Koko Richard, Mawang Adama Adèle, Kammoe Youdom Fernand Felix, Makoudoum Talla Lucie, Djouhoua Talla Justine Malthide) analyze the professionalism of career counsellors and the impact of the intervention quality on students' intention to counsel. The local authors (Helena Vecenane, Zermena Vazne) address issues of the intervention of autogenous training techniques for psychological preparedness of sports school students. Thanks to the authors (Andromachi Nanou, Dimitris Karampatzakis) from Greece, who publish their research in our journal repeatedly and continue to update the possibilities of robotics in an inclusive educational environment. Many thanks to each of the authors for entrusting their research to our journal! Thanks to the reviewers; it would not have been possible to publish this issue without their input and evaluation. We hope that the research published in the journal will be encouraging for readers.

We also invite other authors to submit papers for publication in the e-journal EID. We have started working on the creation of the 5th issue.

Themes:

- **Teaching and Learning** (curriculum development and innovation at all levels, approaches to accommodating national and state standards within the context of effective instruction and assessment, teacher development and mentoring, diversity in the classroom and augmented/virtual reality in education, etc.)
- **Language and Literacy Education** (theoretical perspectives on language or literacy that address teaching and learning; research-validated approaches to instruction and assessment or curriculum development and refinement for general education learners, second language learners, or those with particular needs; learner identity; social justice in literacy and language teaching and learning; accommodating national and state standards within the context of effective instruction and assessment; digitally-mediated learning, etc.)

- **Diversity in Education** (education and multicultural society today, intercultural communication, human rights and anti-racist education, pluralism and diversity in a democratic framework, pluralism in post-communist and in post-colonial countries, migration and indigenous minority issues, refugee issues, language policy issues, etc.)
- **Health and Sport Education** (interventions related to primary prevention of chronic disease from a social ecological perspective that conceptualized the effect of individual, interpersonal, institutional, community and policy factors on lifestyle behaviour, advancement of sport/exercise/health sciences, health promotion, health education, social rehabilitation, physical exercise and health, adapted physical activity).
- **Engineering Education** (engineering education at all levels, innovation in engineering education strategies, course and curriculum design, teaching, and assessment within and outside of the classroom, etc.)
- **Personality Development in the Educational Environment** (professional school counselling, bullying and bullying prevention, social emotional learning, college or career readiness, multicultural counselling and development, performance psychology, etc.)

We invite authors to submit papers to the journal's website http://journals.rta.lv/index.php/EIDWe hope that together we will be able to create a high-quality e-journal on research in education.

Responsible for the publication
Dr.paed. Svetlana Usca

EXPLORING LECTURERS' RESISTANCE TO ACADEMIC STAFF DEVELOPMENT AT A HIGHER EDUCATION INSTITUTION IN THE EASTERN CAPE, SOUTH AFRICA

Zwelijongile Gaylard Baleni[1], Andrea Mqondisi Buka[2], Clever Ndebele[3]
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Abstract. *Higher education institutions and specifically lecturers must stay pertinent and informed of the changes in the academic world. The necessity for staff development programmes in higher education institutions is in accordance with the acknowledgment that transformation for academics is crucial and they need to continually consider their practices to stay pertinent in their disciplines and in teaching and learning issues. Using Karl Marx critical theory, this article explores some dialogue that build lecturers' assertiveness towards teaching and learning in their fields of study. It strives to explore academics' struggle to engage in initiatives on professionalising academic training. Lecturers might interpret academic staff development initiatives as dictatorial and these result in unwanted consequences for both academics and the institution. The study used the 2017-2018 Campus academics statistics on Academic Staff Development (ASD) workshops to sample participants. Questionnaires were sent through google docs to 80 participants. The findings show that there is resistance to undertake professional development courses because of departmental cultures and traditions are detrimental to academic staff development; workload; undervaluing teaching and learning; workshop emphasis on the theoretical features of teaching than practical examples as well as lack of motivation and incentives among others. A well-planned and continuous ASD creates better impact on encouraging and professionalising academics on innovative pedagogies.*
Keywords: *Academic Staff Development, Culture, Resistance.*

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Introduction

The purpose of this article is to explore lecturers' attitudes towards academic professional development and to investigate why some lecturers are less interested to enroll for academic professional development. There a various definitions of academic staff development in literature. Some definitions are put in the following paragraph.

Academic staff development is an on-going process of educating, enhancing, learning and support activities that assist lecturers to develop their pedagogy within the university in which they are working (Severino, 2016) while Quinn (2012) reputes academic staff development as a series of formal and informal activities that aim to contribute towards lecturers' capabilities as scholarly university educators. Its key determination is to enhance the lecturers' awareness of the different responsibilities they need to perform in contributing to their students learning success and the execution of the university's strategic plans (Boughey, 2007). These definitions of academic staff development show encompass improvement or strengthening of knowledge and skills for academics that lead to quality teaching and learning, what Herman, Bitzer and Leibowitz (2018) refer to as Teaching Content Knowledge (TCK) and Pedagogical Content Knowledge (PCK) but with more emphasis on PCK because university teachers are subject specialists already in their respective disciplines. Pedagogical Content Knowledge (PCK) is very crucial in classroom teaching. In the learning and teaching process, PCK comprises the lecturers' competency in facilitating the theoretical methodology, interpersonal consideration and adaptive cognitive of the module content.

The majority of academics in higher education maneuver contending desires. Contending desires incorporate the burden to create income-generating research, scaffold students for future

jobs, facilitate different student cohorts, produce techno-skilled students, and fulfil the university and national strategic goals towards quality and liability (Ghenghesh & Abdelmageed, 2018). The necessity to empower and uphold scholarly development in university educators is inescapable and perceived universally (Clarke & Reid, 2013; Barefoot & Russell, 2014). Although Higher Education Institutions have put the focus on scholarly development, they face the test of uplifting the excellence and position of teaching in spite of pockets of resistance to change and with some doubting professional development programmes (Clarke & Reid, 2013). Universities have to handle the enactment of academic staff development programmes as all academics hypothetically require continuous upskilling and updating on the subject content and pedagogy (Geldenhuys & Oosthuizen, 2015). Concerns of disjuncture between the content of training and lecturers' working contexts have been reported in various settings. These disjunctures disrupt the expected outcomes of ASD that is enhanced pedagogical skills as lecturers lose interest in innovations once they do not supplement their teaching practice. There needs to be a formal well-structured ASD procedures that encompasses diverse approaches towards academic staff development, it might be discipline-based or departmental based approach. Lewin and Stuart (2016) studied educational changes in developing countries and highlighted the threat of applying ordinary training models that disregard academics' explicit restrictions, shortfalls and fundamental motivation. Universities must be flexible in affording academics opportunities to grow both professionally and within their disciplines.

In South Africa, higher education has undergone significant change since 1994 when the country transitioned to democracy. These changes have taken place in policy, legislation, enrolment numbers and the composition of institutions to ensure that higher education in the country is coherent. These changes also improved access to higher education which resulted in considerations of the role of the lecturers from developing the 'underprepared' student towards developing teachers (Volbrecht, 2003; Boughey 2007).

Many of the national imperatives play out quite differently across the system, resulting in substantial institutional diversity. Historically, this institutional diversity has legacy provided perspectives on how opportunities for lecturers' professional development emerged and continue to emerge. DHET (2013) reports that in 2011, there were 938 200 students enrolled in higher education in South Africa supported by 16 935 academic staff. Despite the growth in student enrolments, however, academic staff numbers have been relatively stable over time. Teaching and learning conditions are clearly affected by this finding.

According to Cloete, Sheppard and Bailey (2015), the proportion of permanent academic staff with a doctorate was only 35% in 2012. Due to massification as well as lecturers' shortages who can undertake all responsibilities related to teaching, including doctoral supervision, the likely outcome is a shortage of academics who can fulfil those duties were substantial (CHE, 2016). In addition to the requirement for more staff to attain higher qualifications, there is the potential conflict between what staff had to do as researchers and as university teachers, which might impact on the quantity of time the lecturer could dedicate to each.

With the increasing demands on academic staff of teaching, research, publication, institutional transformation, community engagement, and hard management, the plan for staff development has found it difficult to find coherence. It is thus difficult for academic developers and university managers to agree on the primacies of academic staff development.

Despite global trends influencing academic staff development in South Africa, the local perspective contributed greatly in determining its process, significance and range. Thus, South African higher education institutions show significant differences in pursuing and implementing academic staff development. In pursuit of enhancing university teaching, a national workshop on strengthening university teaching was jointly convened by the Council on HE (CHE) and the Department of HE and Training (DHET) in 2017 (CHE, 2018) where a

national framework was developed. The purpose of this framework is to guide universities in developing and implementing strategies to enhance university lecturers, to enable institutional strategies to align with national strategies, and so to maximise the impact of initiatives across the sector. However each HEI has autonomy to develop its own academic staff development strategy, policies and procedures.

Literature Review

Professional development and professional attitude are crucial for everyone (Ndebele & Maphosa, 2014) and, for all professional members to progress in their career, professional development is a necessity. Hence, higher education institutions worldwide need to have frameworks set up to guarantee they raise the quality of teaching to stay competitive in the commercial place. These desires affect the way lecturers intellectualize their teaching duties and participate in teaching development. According to Lipsett, (2005), lecturers ought to professionally enhance their learning and teaching methods, targets and plans. It is significant for institutions to connect academic staff with new methods of teaching, so that they move away from traditional teaching towards learner-focused learning and improve the student learning experience. A significant method to realize such change is through sorting out staff development training (Deaker, Stein, & Spille, 2016). Staff development is an approach institutions use to change lecturers' attitudes, convictions, and discernments as well as to upgrade their teaching abilities and their students' academic accomplishments (Blandford, 2000). It will likewise assist lecturers in remaining updated with the latest pedagogical strategies, which thusly will contribute fully towards the accomplishment of objectives of the institution.

Consequently, as these workshops, seminars and innovations enhance academic skills and performance of academics in their core disciplines, they also prompt lecturers to strive towards achievement of the institution' s vision and mission (Asfaw, Argaw, & Bayissa, 2015; Kumarm & Siddika, 2017). Such ASD augments the lecturers' full potential, supports them to realize their pedagogic precincts, and guide them through the facilitation of information and skills grown from academic developmental programmes conducted in higher education sector (Balyer, Özcan, & Yildiz, 2017). Hence, Bingwa and Ngibe, (2021) insist that universities must contemplate academic staff professional development vital and as a perilous constituent towards quality teaching and learning.

With all that supporting evidence of academic staff development benefits, resistance within academics to attend academic staff development exist (Ndebele & Maphosa, 2014). Ghenghesh, and Abdelmageed, (2018) pointed out that the two key causes for academics to attend staff development are to achieve innovative knowledge and skills and for personal academic growth. Conversely, the two external factors that constrained them from attending all the workshops were time conflict between their schedule and timing of workshops and workload.

Quiin (2012) divided discourses of resistance into 4 categories:

i. Disciplinary - Lecturers repel teaching development since it is a specialized field and they believe that their content-specific knowledge is ample grounding towards facilitating a module. A PhD is automatic confirmation of teaching competence.
ii. Student deficit (underprepared students) – Lecturers assume that students are underprepared for university, as a result they resist academic staff development because the students admitted by institutions are the challenge to teach not academics (Ghenghesh & Abdelmageed, 2018).

    Skills- Staff development focuses on teaching methodological skills. Lecturers resist staff development because they view ASD as unnecessary as teaching as a scholarly set of pedagogical skills; understanding of relevant learning theories and techniques

and as such not aligned to content facilitation.

iii. Performativity – Research is rated higher than teaching as a result, ASD is not valued because research is one of the highly recognised criteria for promotion and integrity; whereas academic development activities are just for compliance on institutional quality control.

iv. Concept of 'border crossing' effect by Van Schalkwyk and McMillan - the belief is that academic developers cannot be jack-of-all-trades and use the concept of one size fits all. Academics maintain that they need discipline entrenched teaching training not generic ones.

v. Academic Developers' practitioner qualifications – Academic developers' not holding doctoral degrees lowers the integrity of their efforts in training senior academics.

Academic Developers and the institutions need to strategise on how to incentivize academic staff development attendance. In fact not attendance only but completion of the course and implementation of new strategies. Motivation and passion are vital reasons that drive a person to take actions (Sasson, 2011). Generally, once your motivation is low you become unreceptive and blame all around you. On the contrary, a person who is highly motivated is more energetic and optimistic. Usually, lecturers resist transformation, enhancement or proposals for the development of their competencies, creating a challenge to implement academic development initiatives (Bamber, 2008). It might be that they feel not motivated towards attending academic staff development or there are other factors within their environment that hinder their zeal for professional development.

Reasons Why Low Uptake of ASD

The reasons for lack of enthusiasm and zeal in professional development training can be deficient self-confidence on skills, fearing disappointment, low self-esteem, no interest, indolence, non-consciousness of the significance of academic staff development, anxiousness or jumpy feeling, nonexistence of enticements, lecturers' conservativeness, clash with work timetable, household tasks and lacking nuts and bolts (Muzaffar. & Malik, 2012). German educators highlighted why they lack interest in professional development workshops as influenced by professional development, which they felt were not adequate for them and conflicted with their work schedule, as well as programme that are impromptu resulting into an unproductive exercise. (Muzaffar & Malik, 2012). Muzaffar & Malik (2012) also identified that professional courses, which exclude the opinions of participants, especially their necessities, are probably going to encounter truncated inspiration and also result in non-obligation in attending such courses nor execute learned ideas. Professional development trainings, which are more theoretical than practical, also are not motivating. Pedrosa-de-Jesus, Guerra and Watts (2017) also argue that some aspects which might impede individual professional progress are: institutional interferences like teaching loads, administration of learning and teaching, class sizes, limited teaching assets, qualification necessities, and additional personal dynamics for instance superiority of academic role, self-efficiency and group-value and self-reliance, and distinct personality.

Some negative views on ASD like some lecturers feeling that they are masters and specialists in their disciplines as a result they take teaching for granted. They see ASD as a university fuss and waste of their research time. They also believe that their high qualifications are enough to scaffold students to pass especially the experienced academics who claim to have taught so many years with good student success rates.

Professors regarded themselves as experts in their disciplines and noticed no gain in taking part in ASD initiatives. Lecturers have a negative mind-set towards ASD programmes. The main reason of this negative mind-set is that academics undermine teaching; they view it as ordinary. This concurs with what Lipsett, (2005) found on the professionalisation of teaching

in higher education institutions in South Africa. They established that the dialogue about teaching in universities regarded teaching as a common sense occupation as a result anyone in possession of Doctoral qualification should teach effectively, an assertion also stressed by (Ndebele & Maphosa, 2014; Pedrosa-de-Jesus, Guerra, & Watts, 2017). Studies of teacher development programmes across the US, UK, Canada and Australia likewise support this discourse. Yet, such an assumption might be detrimental to constructively aligned teaching and assessment especially in student-centred approaches.

How to Motivate Them to Take Part in Workshops

All lecturers ought to be mindful of how critical proficient development preparing is, for their effective career (Ndebele & Maphosa, 2014). Much accentuation ought to be on practical implementation than the theoretical perspectives. Lecturers ought to be remunerated for great occupations. Motivations or jolts ought to be presented amid professional improvement trainings. There ought to be legitimate one-on-one monitoring of their teaching implementations after workshops. Lecturers have to be empowered and persuaded amid trainings.

Theoretical Framework

The critical theory originally started in Europe (Sullivan, 2021). Critical theory, a Western-Marxist-motivated development theory, is primarily linked with the work by the Frankfurt School (Sullivan, 2021). Drawing especially on the idea of Karl Marx and Sigmund Freud, scholars maintain that an essential objective of critical theory is to comprehend and to help defeat the social structures through which individuals are ruled and mistreated. Critical theory is inspired greatly by Marx's theoretical formulation of the relationship between economic base and ideological superstructure and focuses on how power and domination operate. The work of the Frankfurt School members, including Max Horkheimer, Theodor Adorno, Erich Fromm, Walter Benjamin, Jürgen Habermas, and Herbert Marcuse, is considered the heart of the critical theory (Crossman, 2019).

Critical theory is a social theory adapted for critiquing and transforming society as an entirety (Crossman, 2019) and in education is about questioning how our educational system can best offer education to all people. Critical theory provides a basis for conceptualisation and it also provides a guide for social change. It is underpinned by values such as empowerment, emancipation, transformation, and contradiction. However, for this paper only empowerment, transformation and emancipation will be used. In the field of education, empowerment is often associated with the classic work by Freire (1979, 1986). In the process of improving lecturers' teaching skills, they are empowered to be good lecturers. These lecturers through ASD will be motivated to teach effectively as they will be confident i.e. self-efficacy is enhanced. When an individual feels empowered, he/she has a greater sense of intrinsic motivation and self-confidence; alternatively, a feeling of disempowerment can result in decreased levels of motivation and self-confidence.

Empowerment leads to transformation. Critical theory is applicable to ASD as it advances transformation and change, which are the aims of developing academics towards being quality university teachers. Empowerment is the trademark of academic staff development and without it, there is no transformation in HE to discuss. Scherer (2008) claims that emancipation concerns critically analysing, resisting, and challenging structures of power. According to Clouder (2010), reflective practice promotes professional development through critical analysis of contextual issues of power and inequality, diversity and inclusion which manifest themselves in HE (Karban & Smith, 2010). Chabaya (2015) also supports that reflective practice as part of critical theory is accepted as a key component of professional development. The implication is that ASD ought to empower academics to be critical and independent thinkers who will engage in

critical inquiry.

For academic staff development, critical theory is useful because lecturers that are trained come from different disciplines. Their levels of professional training in teaching differ so critical theory will assist this study to critic how it is implemented to cater for their individual needs and not as one size fits all.

Methodology

The researcher used quantitative approach to attain the objective of the study. Quantitative research is grounded on positivism that believes logical clarification to be nomothetic (Creswell & Guetterman, 2019). The approach was chosen because it determined the contemporary convictions and assertiveness of the lecturers with respect to their professional advancement preparations. Furthermore, it portrays and investigates people's personal and mutual communal activities, convictions, contemplations, and recognitions factually (Creswell & Guetterman, 2019).

The population for the study composed of lecturers who attended academic staff development in 2017-18 and the targeted sample size was 80 although 51 only responded. The researcher used simple random sampling to select participants for the study. Data was collected using questionnaires. The questionnaires were sent through a link of google docs to the lecturers from various departments. A questionnaire is regulated interviewing, wherein every participant responds to the same questions with the similar selections in responding to them (Hofstee, 2018). They are a cheap, easy, and efficient method of accessing a large number of participants (Maree, 2016). Google docs make interface much easier as it automatically creates graphs and even clusters common info. The participant's responses were analysed from the graphs created by google docs as the graphs shows responses as percentages or numbers.

Results and Discussion

The results were analysed from the graphs as generated by google docs as follows:
In the figure 1 below, the majority, 63%, are females, while 37% are males.

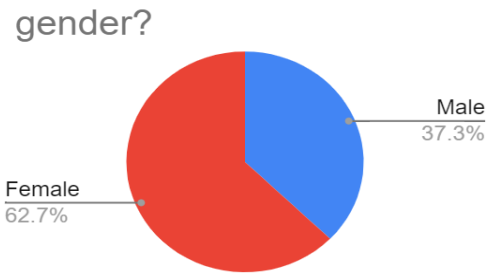

Figure 1 ***Gender distribution***

The age distribution of the participants in Figure 2 below, shows that the majority, 43% is 40-49 years old, followed by 30-39 years old. The lowest group is below 30 years old academics. This shows that this institution has functional staff age groups who, if retained and properly professionalised, could be of great benefit to the academic enterprise of the institution. The senior citizen group, 60 years and above, is minimal in the sample, but they might not be the true reflection of this HEI academic profile. The mixture of the age group is useful in collecting data on how academics in this institution conceptualise ASD.

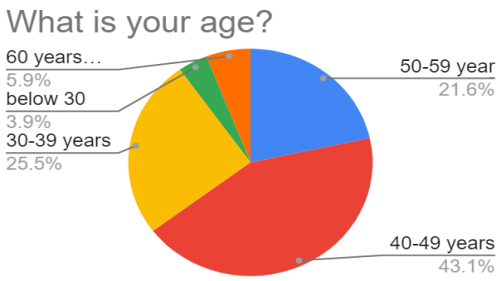

Figure 2 ***Age Distribution***

This might show a variety on what motivates them as qualifications are concerned in Figure 3, 69% possess Masters qualifications, a basic entry-level for the employment of a lecturer in HE. Only 3% of the sample have PhD qualifications. This scarcity of highly qualified academics might hinder quality, especially for postgraduate qualifications. Such a situation contradicts what Baraiya and Baraiya (2013) advocate, that lecturers with appropriate qualifications contribute a crucial part in excellence and improvement of teaching in their institutions. The primary concern, though, is the Bachelor of Technology, Honours, Bachelors group of lecturers (28%) who are below the norm that a lecturer must teach a qualification if she/he is one NQF level above it. There is no academic staff that has National Diploma qualification in the sample; hence, in fig 4.3 it does not appear, even though it has its legend in the graph.

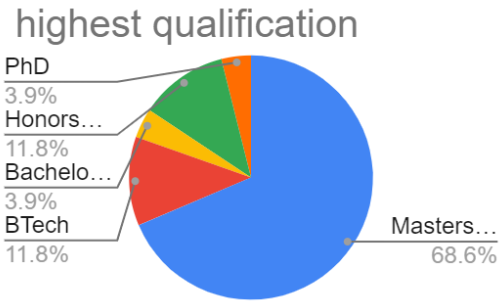

Figure 3 ***Highest Qualifications distribution***

The following figures, 4 and 5 show a very alarming situation for this institution where only 33% were trained as lecturers. This means that most of these academics were never professionally trained to teach. The question of being trained as lecturers and what teaching qualification the participants had was not surprising, though concerning. Of the 33% of the participants who were trained as lecturers, only 14% own Post Graduate Diploma in HE, a higher education recognised teaching qualification. The rest of those trained to teach qualify to teach at levels below NQF level 5. The sample has lecturers who possess Primary Higher Certificate (PH), (2.5%) and Primary Teachers' Certificate (PTC), (2.5%) indicating that part of these lecturers are the old stock. They were trained as teachers long time ago. Considering the NQF level descriptors, pedagogies, and andragogy of teaching, this 86% of untrained lecturers need to be upskilled for the HE teaching strategies. Several studies have determined that lecturers with teaching qualifications are rated higher by the student than lecturers who are under-qualified (Cilliers & Herman, 2010; Weurlandeer & Stenfors-Hayes, 2008). The upper evaluations have been identified with improved teaching approaches. Donnelly (2006) states that the three principles that impact affect lecturer conduct following investment in a scholarly professional programme were the improvement of new instructional methodologies, the usage of new teaching approaches, and the adjustment in convictions about teaching and learning

hypotheses.

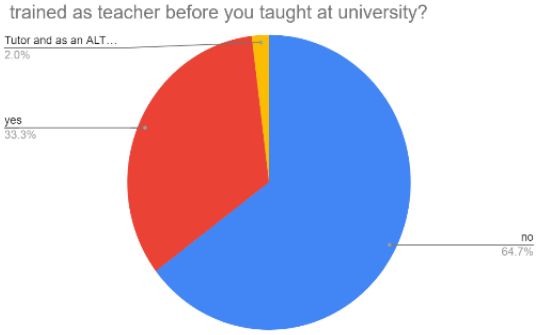

Figure 4 ***Trained as a Teacher***

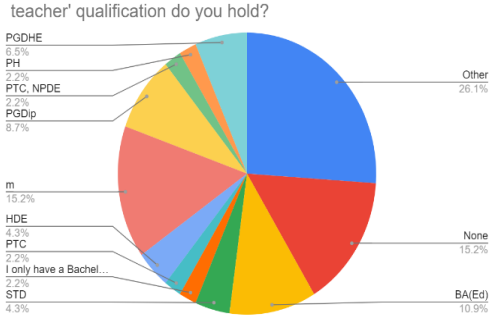

Figure 5 ***Highest Teaching Qualifications***

Figure 6 below shows that 43% of the participants have 0 years or less teaching experience while 22% have taught for 16-20 years and only 2% have taught more than 26 years. The number of teaching experience might not match age group because some academics join higher education late in their careers, some are even pensioners from lower department of education levels like further education level. The low number of experienced (26 years) can affect mentoring of junior staff and these might be those lecturers who find it hard to accept innovations in their teaching philosophies.

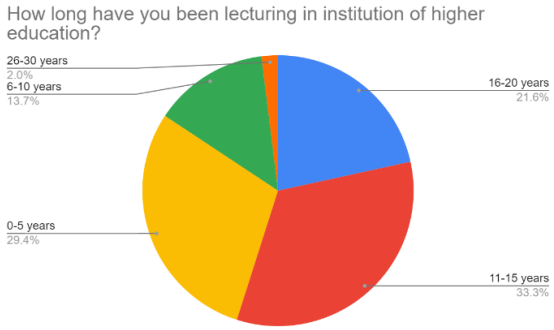

Fig 6*: Lecturing Experience in HE*

Figure 7 ***Teaching Needs***

Apparently, academic staff development workshops are crucial for effective persistence in any profession. The figure 7 above shows that the majority of the lecturers view academic staff development as a necessity. It was also noticed from responses that the non trained academics are more interested in attending workshops than the teacher trained ones. However those trained as teachers even though they were not trained to teach in higher education are reluctant to attend since they take for granted that the same aspects of teaching are workshopped. Their argument is that teaching theories are the same no matter what level of education ignoring the National Qualification Framework (NQF) level descriptors guide them on what learning students should get at each level. One response further elaborates recommending follow-ups after the workshops as a serious consideration. This response is from the 60 and above group who might have observed that lecturers although trained do not bother to implement innovative approaches.

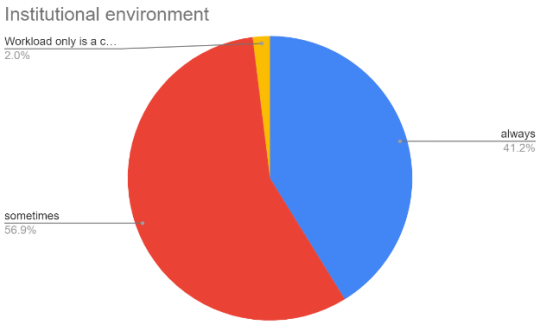

Figure 8 ***Institutional Environment constraints ASD***

Respondents identified various constraints that discourage their attendance of academic staff development initiatives. Workload for example requires departmental conversation on who and how academics can be allowed space to develop themselves towards being better university teachers. By and large, workloads are cock-eyed in the direction of research as lecturers progress, since numerous HEI have a tendency to esteem highly research and its outputs more than teaching throughputs (McComb, Eather & Imig, 2021). As a result, academics respond better to research workshops than learning and teaching based ones. Resisting to undertake academic staff development is caused by lecturers holding in low esteem the teaching duties as their fundamental key performance activity (KPA). Once an institution emphasizes research at the expense of teaching (Ndebele & Maphosa, 2014), as a result it paints a picture that teaching and learning are not considered central core business of the university (Ndebele & Maphosa, 2014). The new academics especially are pressurized to choose between research and teaching and unfortunately they feel research is more crucial as it is linked with their recognition, prestige

and status as university academics within their disciplines. The Scholarship of Teaching and Learning (SoTL) would be a solution to integrate teaching and research to drive scholarly teaching as lecturers will publish while they are also being enhanced on their pedagogical knowledge.

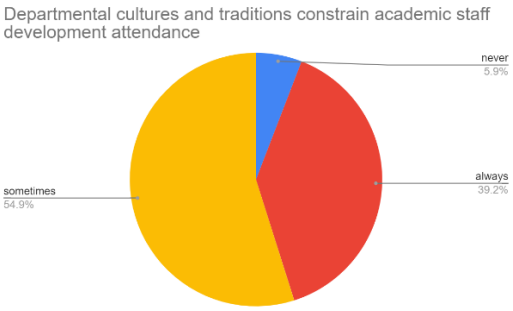

Figure 9 ***Departmental cultures constrain ASD attendance***

The responses indicate that departmental cultures and traditions are detrimental to academic staff development as 39.2% plus 54.9% support this statement. If there is no conducive working culture in departments, transforming teaching will lead to just an obedience culture that might result to no implementation thereafter in class. Obstacles within a department tend to discourage innovations and professional development of academics as they feel alienated from discipline colleagues. They end up looking at pedagogical training as unnecessary. This tends to be influenced by old folks in the discipline who believe their old teaching methods have worked effectively as reflected by their graduate outputs. Initiatives like a professional learning community are shot down and disengaged Warhurst, (2006), as a result the envisaged impact towards learning and teaching differ significantly.

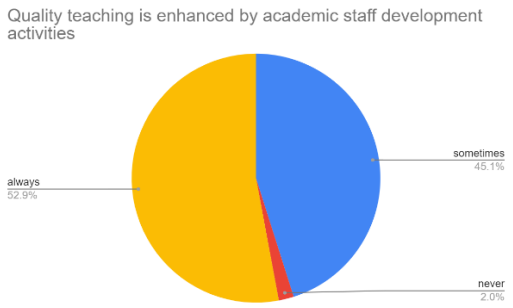

Figure 10 ***ASD enhances Quality Teaching***

ASD workshops transform the teaching approaches, assertiveness and teaching philosophies.

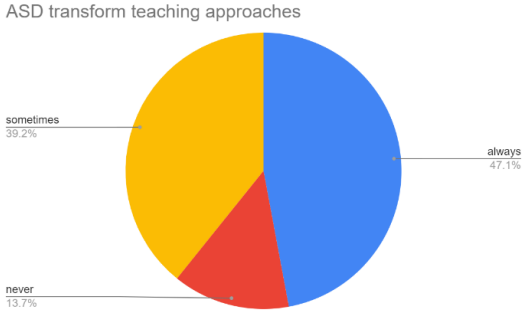

Figure 11 ***ASD transforms teaching approaches***

Academic Staff development workshops empower lecturer's philosophies of teaching, their assertiveness and their teaching approaches since the majority of them agreed. Only 14% of them felt it never influenced their teaching philosophies. This means those academics who attend ASD workshops see value in them as their pedagogical knowledge improves. The PGDHE attendees especially those that were never trained as teachers even appreciate more as they now understand education terminology like graduate attributes, outcomes and assessment criteria. They now feel confident to align and ink them in their teaching.

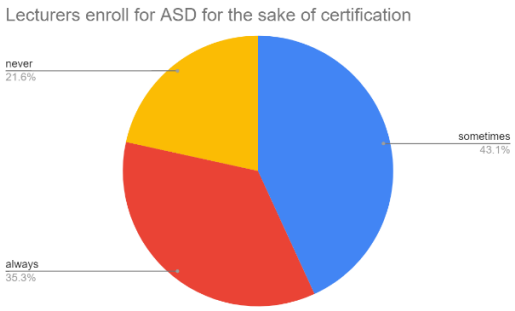

Figure 12 Lecturers enroll for ASD for the sake of certification

Most respondents settled that ordinarily lecturers partake in the academic staff development workshops for certification, a finding aligned with (Muzaffar & Malik, 2012) research of six universities in Pakistan. This might be influenced by a variety of reasons like university requirements for promotion and professional development points required in some professional bodies. It is unfortunate that the certificate alone never upskills an individual without him/her making an effort to implement learnt strategies.

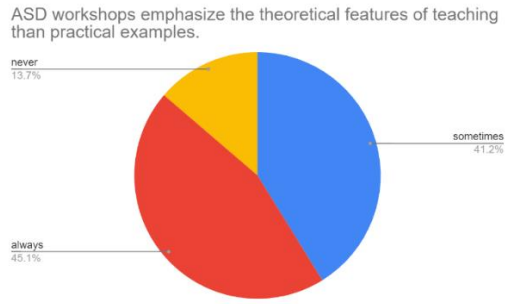

Figure 13 ***ASD workshops emphasize the theoretical features of teaching than practical examples***

Most respondents (45% + 41%) agreed that ASD workshops have big theoretical portion than practice. This approach to ASD might lead to their lack of interest in the professional development as lecturers want to be empowered towards better classroom strategies. The 14% of responses that disagreed with this statement value ASD and they believe practical examples are useful for their professional development.

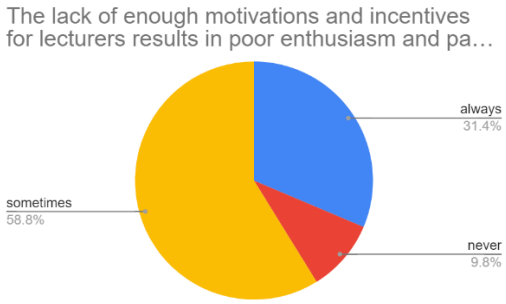

Figure 14 ***The lack of enough motivations and incentives for lecturers results in poor enthusiasm and passion***

31% and 59% responses indicate that there are no incentives or stimuli in the professional development workshops as a result lecturers are not motivated to attend them. While 10% of them showed disagreement with this statement.

The university's management ought to eradicate these barriers to enable a conducive climate and stimulate academics towards being enhanced university teachers.

Conclusion

The constraints to academic staff development attendance might have a negative impact on academics' teaching innovations. Each discipline and department needs to motivate its staff by continuously engaging them on their developmental needs and plans. To respond to the low number of teacher trained academics, the institution must periodically develop lecturers' pedagogical skills and strategies to keep them updated with worldwide Courses like Post Graduate Diploma in Higher Education, Sector Education and Training Authority (SETA) accredited qualifications and other workshops ought to be linked to compensation, advancement and contract prerequisites for lecturers to be motivated to register and complete them. For instance, all new academics can be forced to complete a certain professional qualification to qualify for being permanent or to be promoted. Training on various pedagogical techniques are strategic in drawing consideration to innovative classroom improvements, however it is regularly challenging to pull in active staff individuals to these programs (Pesce, 2015). It is imperative that institutions have a thorough understanding of what draws academics to professional development programmes, as well as the academics' assertiveness and what they prefer so as to implement engagement strategies that will lead to better learning experiences. The lecturers' needs based on various evaluation of their teaching should guide their training needs and as such guide the institution on who to invite for which workshop or course.

Higher Education Institutions must put an incredible emphasis on refining the skills and proficiencies of academics to succeed in quality facilitation and throughput rates (Bingwa & Ngibe, 2021). A well-planned and continuous academic staff development schedule makes better impact on encouraging and professionalising academics on innovative pedagogies than impromptu training. An annual schedule of ASD events should be drawn up to allow academics to align their professional development needs with them. This will develop a conducive and healthy institutional environment that expedites professional, scholarly growth of lecturers. During workshops, incentives and rewards like useful teaching tools can be given out for good interactions/completing tasks early to entice academics to attend regularly. Proper framework should also be designed for monitoring of lecturers' performance after training.

Crawford, (2010), for example, contemplates that one of the foremost critical achievement aspects for lecturers' academic development is the presence of a caring milieu for creating and/or partaking in worthy teaching practices.

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EDUCATION. INNOVATION. DIVERSITY (EID)

GUIDANCE COUNSELORS' PROFESSIONALISM AND STUDENTS' CONSULTATION INTENTION IN SECONDARY SCHOOL: A SERIAL MEDIATION OF INTERPERSONAL SKILLS AND EMPATHETIC DISPOSITION

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***Abstract**: This study deals with the professionalism and students' consultation intention of guidance counselors. The purpose of this study was to determine the influence of the quality of interventions on the students' intention to consult guidance counselors, via interpersonal skills and empathetic disposition. The data presented in this study were collected by means of a questionnaire from 388 students from three high schools in the city of Yaoundé, Cameroon. The mediation analysis carried out support the indirect effect of the quality of the guidance counselor's interventions on the students' consultation intention, through the successive mediators of relational qualities and empathic disposition.*

***Keywords**: Consultation intention, empathetic disposition, guidance counselor, intervention quality, interpersonal skills, professionalism.*

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Introduction

The economic, social and cultural development of any society is the conjugation of several factors such as the awakening of consciousness, the acquisition of knowledge, and in general, education (Fonkeng, 2007). Therefore, the development of humanity inevitably passes through education, which is the means for any society to ensure its sustainability. As old as human societies, education is a field that requires patience, attention, regularity and continuity. The issue of education is therefore vital at the individual, community and international levels. In Cameroon, this determination was concretized by some consultations that led to the holding of the General Forum on Education in 1995. The resolutions led to the adoption in April 1998 of the Law of Education (Ntebe Bomba, 2008). This law demonstrates the State's desire to ensure the efficiency of its education system, which led it to make basic education compulsory and free (Fonkeng, 2007). Post-primary education has benefited from this commitment, with adjustments to ensure the quality of education in secondary schools.

For Fonkoua (2008), if the Law of Education stipulates that the teacher is the main guarantor of the quality of education, in order to accomplish his mission, he works in consultation with other partners, including guidance counselors who provide orientation and school psychology activities for students at all levels of education (Ntebe Bomba, 2008). However, it turns out that the latter and their missions are not always well understood by the educational community. It was observed that students still have difficulties in seeking the help

of guidance counselors when they faced academic and personal (Fonkoua & Youtha, 2008; Yahaya & Bomda, 2014).

For instance, a study carried out by Fonkoua in 2007 revealed that guidance counselors do not exhibit the professional qualities that are expected from them in the school milieu. It is understandable why students put their trust in either parental guidance or their personal orientations and then what their peers tell them. The guidance counselor is only statutorily third in their orientation. Meanwhile, the guidance counsellor, who works with students and the entire educational community, is supposed to mobilize a set of professional qualities (quality of his pedagogical intervention, interpersonal skills and empathetic disposition) to inform and guide students according to their aptitudes, interests and needs (Yahaya & Bomda, 2014).

The purpose of the present study is to investigate students' perceptions of guidance counsellor professionalism and how it affects consultation intention among students. The study aims to determine the relationship between the professional qualities of school guidance counsellors and their consultation intention by secondary students with interpersonal skills and empathetic disposition as mediators. The research method used was a survey study. This paper examines the relationship between intervention skills and consultation intention of secondary school students, mediated by interpersonal skills and empathetic disposition. We believe that if the guidance counsellor mobilizes good interpersonal skills, ensures the quality of his pedagogical intervention, demonstrates a certain adaptability in the school environment, and shows an empathetic disposition, he would arouse interest in guidance counselling activities among the students; and this would have the advantage of increasing the rate of intention to consult the guidance counselling services by the students for help (Fonkoua & Youtha, 2008; Okéné, 2009; Yahaya & Bomda, 2014).

Literature Review

The major works on educational and vocational guidance approach professionalism in at least two directions (Blanchard & Gelpe, 2008; Guichard & Huteau, 2006). Of course, competences concerning specific know-how will be necessary and will have to be renewed during the career (Guichard, 2002). But other competences will also be indispensable, centered around their capacity to understand their environment in a broad sense and not only with the glasses of the guidance counselor (Okéné, 2009). This is why this work of understanding will have to be organized more collectively in the guidance counselling service (Guichard, 2002; Pouyaud & Cohen-Scali, 2016). The guidance process is now largely incorporated into the general functioning of the school system (Bomda, 2008; Fonkoua, 2007; Okéné, 2009; Sikali, 2009). Student support is increasingly assigned to schools (MINESEC, 2009). The figure of the student counsellor-psychologist is evolving and becoming smaller (Fonkoua & Youtha, 2008; Sikali, 2009). For a long time, it has been hypothesized that the main target of the guidance counsellor is changing: it is shifting from helping the student and his parents to helping other professionals in the school to move towards educational and vocational guidance (Fonkoua & Youtha, 2008; Yahaya & Bomda, 2014).

Towards quality in guidance and counselling services: Considered as the third pillar of the Cameroonian education system after pedagogy and school administration, guidance and counselling has replaced purely academic and vocational guidance. It is defined by UNESCO (2002) as "an educational practice of a continuous type, aiming to help each individual to choose for himself the training most in line with his aptitudes, tastes and interests, to adapt to it and to solve his behavioral, psychological, relational, personal and social issues in view of his full personal development and his integration into active life, in conformity with the needs of the country and its prospects for economic, social and cultural progress". Today, the guidance needs of students are diverse and depend on their psychological functioning, the resources available to them and the conditions of the environment around them (Guichard, 2002; Order of Guidance Counselors of Quebec (OCCOPPQ), 2010; Pouyaud & Cohen-Scali,

2016). Helping them to transform an educational goal, such as finding a direction of study, into a set of actions to achieve that goal should be a fundamental concern for guidance counselling services and its professionals, the guidance counselors (Yahaya & Bomda, 2014).

In the school environment, the guidance counselor who accompanies the young person in his or her self-discovery, in the concrete and active exploration of the world of training and work, in the support for the development of his or her autonomy, in his or her decision-making, in the confirmation of his or her career plan and in its realization, will have to sharpen his or her skills more in order to be up to the task of meeting the expectations of students and society (Guichard, 2004). He knows what can inform the choices that the student has to make, both with regard to intrinsic elements such as his personality traits, beliefs, values and interests, and with regard to extrinsic aspects such as his family and social environment, his skills, his knowledge and the personal resources at his disposal. The guidance counselor must provide the student with this insight in relevant ways in order to enable him or her to better define him or herself, to better understand the various aspects influencing his or her choice and to help him or her find meaning in his or her learning so as to persevere in his or her academic path and, ultimately, to find his or her place in society (Pouyaud & Cohen-Scali, 2016). The guidance counselor's assistance thus provides guidelines and benchmarks that enable students to engage in school and in the realization of their future plans (Guigue, 2001).

Training and professionalism of the guidance counselor: According to Fonkoua & Youtha (2008), the guidance counsellor is a staff member with three skills: skills related to knowledge of the individual and groups, skills related to knowledge of the school and university environment, and finally skills related to knowledge of the economic world. Entering the second cycle of higher education with a bachelor's degree, preferably in the humanities, the guidance counselor receives training based on fundamental knowledge (psychology, sociology, economics, pedagogy, administration and planning), practical knowledge (statistics, demographics, computer science), and finally professional knowledge (the practice of tests, interviewing, information, guidance and counseling techniques, ethics and deontology, a final thesis and professional internship) (Yahaya & Bomba, 2014).

At first sight, he/she is trained to advise and to orientate at school, university and professional level, but he/she can be attached to structures using applied psychology such as the educational system, manpower services, various services of professional selection in public and private administrations and more precisely the services of human resources which are interested in the problems of socio-professional insertion (Okéné, 2009). These are the issues of reciprocal adaptation related to work system and the improvement of skills during a career. From the psychological and individual point of view, the guidance counselor has a legitimate role in the structures interested in guidance problems such as school and vocational statistics services, school mapping services, educational planning services and the child welfare system (Guichard, 2002; Guichard & Huteau, 2006).

Independent and mediating variables

The guidance counselor (school psychologist) accompanies students in the construction of lifelong orientation skills (Guichard & Huteau, 2006; Pouyaud & Cohen-Scali, 2016; Yahaya & Bomda, 2014). He/she ensures and coordinates the organization of information for students on self-discovery, careers and training, in conjunction with the educational teams. In other words, on a day-to-day basis, the counselor must welcome all students from the 6th grade upwards, help them sort through the numerous pieces of information they gather here and there, but above all listen to them, reassure them and motivate them (Pouyaud & Cohen-Scali, 2016). The essential skills required of guidance counselors are: adaptability, competence and creativity, interpersonal skills and empathy.

Intervention quality: Intervention quality are tasks, exercises that can arouse the interest of students to immerse themselves in vocational activities when they meet the needs in line

with their personal and professional future project (Pouyaud & Cohen-Scali, 2016). Thus, if the guidance counselor is to be creative and relevant in his or her interventions to captivate the students, and get them to identify their needs of which they are previously unaware. If we admit that each student envisages his or her future to some extent, the guidance counsellor will not bring them anything new, but it is a relevant approach that will awaken in these students the desire to consult the counselor and to become actively involved in his or her guidance activities.

Studies carried out by Guigue (2001) among secondary school students in France show that many of them say that schools do not provide them with any guidance at all in their choice of course of study and profession. They say that their orientation and their professional project are defined by themselves or by their parents without the notable help of the guidance counselor. For them, the latter are of no use in the schools and they state in their speech that they do not know what the guidance counsellor can do for them in terms of their academic and professional orientation (Fonkoua & Youtha, 2008; Guigue, 2001).

It is essential to be able to adapt and evolve the relevance of interventions (Pouyaud & Cohen-Scali, 2016). Be willing to work extra hours or take on new tasks when necessary. Be able to revise one's judgment or opinions. Questioning one's knowledge and beliefs. Be willing to learn. Be a good observer and listener. The guidance counselor must be adaptable to the school environment and be increasingly involved in finding new ways of doing things in order to reach the maximum number of students in their interventions (Guigue, 2001).

Interpersonal skills: The effective guidance counselor is genuinely interested in the happiness and well-being of students. He or she feels deeply concerned, which builds confidence in the student being helped (Guichard, 2002; Guichard & Huteau, 2006). Even better, because the student feels valued and cared for, he or she feels valuable and begins to like him or herself. The counselor must be authentic. He or she must be open and sincere, and avoid any falsehoods or airs of superiority. Relational authenticity means being spontaneous without being impulsive and frank without being cruel. It means that the counselor is truly transparent, not thinking or feeling one thing while saying another (Okéné, 2009).

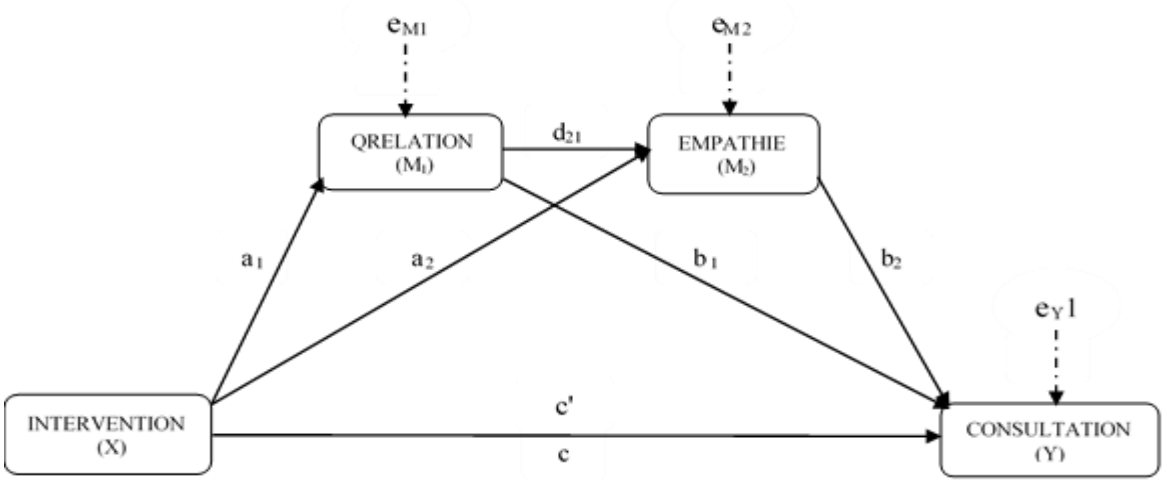
Relational qualities imply that the counselor has a humble spirit. A counselor who is arrogant, self-absorbed, or thinks he or she knows everything is likely to cause havoc. A proud and haughty spirit will turn off teens and cause more problems than it solves. A humble spirit, on the other hand, will seek to understand rather than be understood. The humble spirit will never be quick to give advice. Instead, it encourages the student to seek his own answers and directions. He focuses the conversation on the mentality and sensibility of the person he is talking to, and does not draw attention at all to the talents, know-how or wisdom of the Counselor (Guichard, 2002).

The empathetic disposition: The knowledge acquired in listening enables them to truly identify the profile of the students they meet, to have a real quality of listening in interviews, to have a fine perception of their expectations both in relation to the educational system and in relation to the help they can give them in their orientation process (Guichard, 2002).

The quality of the reception, the listening and the orientation process, which requires a great deal of empathy, could influence positively or negatively their behaviour with regard to the training activities and adapted services that the guidance counsellor provides within the institution (Guichard & Huteau, 2006). The guidance counsellor 's contribution is to break the ice between the learner and the guidance counselor. The guidance counsellor 's contribution is to break the ice between the learner and the guidance counsellor, because the guidance counselor should not be on the administrators' side, but on the students' side, so that the students are able to approach the guidance counselor easily and talk to it easily (Pouyaud & Cohen-Scali, 2016).

Dependent variable

*Intentionality for consulting school counselors***:** Intentionality is a psychological state that guides an individual's attention, experience, and actions in a process to achieve a specific goal. Fishbein & Ajzen (1975) have demonstrated the effect of the components of intention (attention, expectation and belief) on behavior. In addition, Roy & Savoie (2007) describe the construction of the consultation intention as the result of the interaction between the personality and the characteristics of the social context on the one hand and rational and intuitive reasoning on the other hand. In the fields of education and psychology, intention has another dimension. Intention" is considered by Krueger & Carsrud (1993) to be a process that emerges with the needs, values, habits and beliefs of the individual. It expresses the intensity with which an individual is ready to try, the level of effort that he/she plans to invest, to adopt a behavior (Ajzen, 1991). It is, according to Bird (1992), dependent on contextual variables, the element that structures and guides the action. It is expected that the quality of the guidance counselor's interventions will influence the students' consultation intention, through the successive roles of relational qualities and empathic disposition.



Note : INTERVENTION : Intervention Quality ; QRELATION : Interpersonal Skills ; EMPATHIE : Empathetic Disposition ; CONSULTATION : Consultation Intention

Figure 1 ***Conceptual research model***

Methodology

Research tools

The questionnaire consisted of 30 items and 7 factual questions (school attended, class attended, gender, age, etc.). Participants were asked to respond using 5-point Likert-type scales ranging from "Never" to "Very often", or from "Strongly disagree" to "Strongly agree". The internal consistency of the dimensions of each scale is assessed by the coefficient of Cronbach's alpha (a). The use of different instructions minimizes response bias according to the recommendations of (Podsakoff et al., 2003).

Data collection procedure

Participants were informed of their right not to participate in this study as well as the anonymous nature of the study. The students were also told that there were no right or wrong answers and that the data collected would remain confidential and would only be used for research purposes. The instruction on the questionnaire was: "The following statements are about opinions you may have about school and career services. Indicate how much you agree with each one. The time limit for the questionnaire was 15 minutes.

Methods of analysis

The statistical analyses were conducted using SPSS software (version 26.0 for Windows). In order to test all the hypotheses, several steps were followed. First, we analyzed first-order correlations to explore combinations between factors of guidance counselor professionalism and students' counseling intention in school counseling services. In the final part of the results, descriptive analyses were conducted on the relationship between the study variables, and mediation analyses were conducted to test the mediating effect of relational ability and empathy on the relationship between guidance counselor professionalism factors and students' intention to consult school-based guidance services. To conduct these mediation analyses, the procedure defined by Preacher & Hayes (2008) was used. Following Fig. 1, it consists in estimating parameters (a, b, c and c') that allow to differentiate the total effects from the direct effects of the predictor variable on the dependent variable. On the basis of these initial calculations, the indirect effects are estimated on a 95% confidence interval using a bootstrapping procedure on a probability sample of n = 10000. This procedure is commonly used and is robust to the possible biases of non-normal distributions of the data (Preacher & Hayes, 2008).

Participants to the study

This study was conducted among ninth, tenth, and twelfth grade students in three public secondary schools (Mendong and Etoug-Ebe bilingual high schools, and Biyem-Assi high school) in Yaoundé, Cameroon. After obtaining permission from school principals, students were invited to complete the questionnaires on a voluntary and anonymous basis during school hours. A total of 388 students completed the questionnaires, however 04 questionnaires were withdrawn from the study because they were incomplete. In fact, the study was conducted with a total of 384 high school students, of which 195 were boys and 189 were girls, with an average age of 17.13 years (SD = 1.84); 133 of them were in the ninth grade, 125 in the first grade, and 126 in the last grade.

Research results

Descriptive analysis

The descriptive statistics for the different variables under study are presented in Table 1. Also included are means, standard deviations, internal consistency index (Cronbach's α), and correlations among the study variables. The results of correlation analyses indicate that consultation intention, intervention quality, interpersonal skills, and empathetic disposition of the guidance counselor are all significantly and positively correlated.

The relationships between intervention quality, interpersonal skills, empathetic disposition, and student consultation intention were measured using Pearson correlations (Table 1). To this end, Table 1 presents the correlation coefficients between the components of our three variables. The measure of intervention quality was positively and significantly correlated with interpersonal skills ($r = .341$, $p < .001$), and empathetic disposition ($r = .604$, $p < .001$), as well as consultation intention ($r = .337$, $p < .001$). In addition, interpersonal skills were positively and significantly correlated with empathetic disposition ($r = .661$, $p < .001$) and consultation intention ($r = .424$, $p < .001$). Finally, the measure of consultation intention correlated positively and significantly with empathetic disposition ($r = .459$, $p < .001$).

Table 1 ***Means, standard deviations, coefficient (α), and correlations among the study variables***

		Means (M)	(SD)	α	1	2	3
1	INTERVENTION	3,093	0,658	0,820	-		
2	QRELATION	2,698	0,732	0,791	0,341***	-	
3	EMPATHIE	2,904	0,727	0,832	0,604***	0,661***	-
4	CONSULTATION	2,615	0,524	0,784	0,337***	0,424***	0,459***

Note : INTERVENTION: Intervention Quality; QRELATION: Interpersonal Skills; EMPATHY: Empathetic Disposition; CONSULTATION: Consult Intention; N = 382; ddl = 384; *** p < 0.001

Mediation analysis

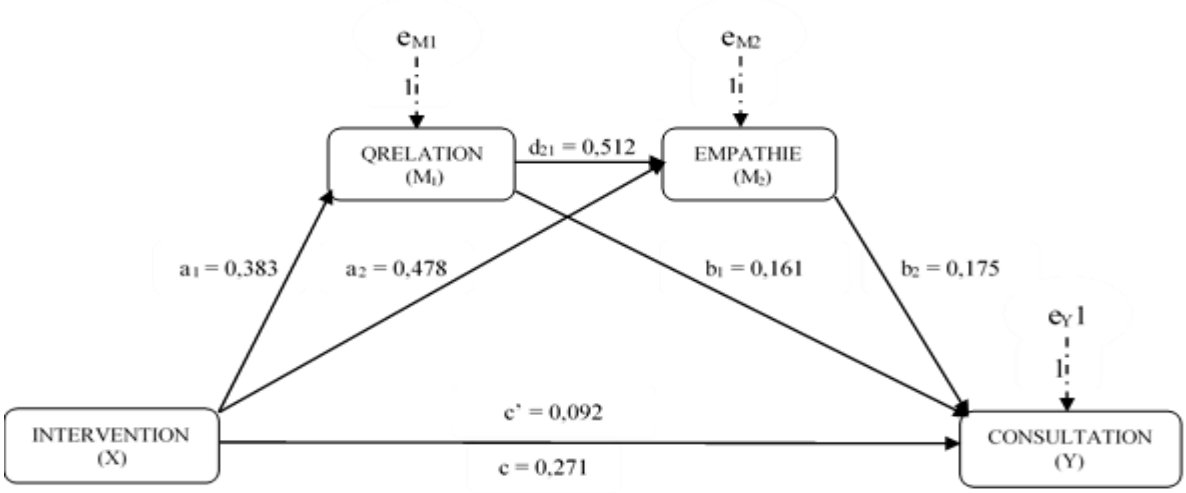
We tested a serial mediation model with relational qualities and empathetic disposition, in the relationship between the quality of the guidance counselor's interventions and counseling intention. The analysis was performed using the PROCESS macro (Model 6) of Hayes (2018), with 10000 bootstraps.

Table 2 ***Regression coefficients, standard errors, and summary of the tested research model of two serial mediators for students' consultation intention***

		Consequent									
		M1(QRELATION)			M2 (EMPATHIE)				Y (CONSULTATION)		
Antecedent		*Coeff. (B)*	*ES*	*p*	*Coeff. (B)*	*ES*	*p*		*Coeff. (B)*	*ES*	*p*
Constant	i_{M1}	1,513	0,171	< ,001	i_{M2} 0,047	0,126	= ,710	i_Y	1,391	0,1245	< ,001
X (INTERVENTION)	a_1	0,383	0,054	< ,001	a_2 0,478	0,038	< ,001	c'	0,092	0,045	= ,044
M1 (QRELATION)		-	-	-	d_{21} 0,512	0,034	< ,001	b_1	0,161	0,043	< ,001
M2 (EMPATHIE)		-	-	-	-	-	-	b_2	0,175	0,051	< ,001
		R^2 = 0,116			R^2 = 0,559				R^2 = 0,245		
		F(1, 383) = 50,328 ; p < ,001			F(2, 381) = 284,580 ; p < ,001				F(3, 380) = 41,015 ; p < ,001		

Note : INTERVENTION : Intervention Quality ; QRELATION : Interpersonal Skills ; EMPATHIE : Empathetic Disposition ; CONSULTATION : Consultation Intention ; N = 382

The quality of the guidance counselor's interventions had a significant and positive effect on interpersonal skills (a1 = .383; t = 7.094; p < .001). Quality of guidance counselor interventions had a significant and positive effect on empathetic disposition (a2 = .512; t = 14.93; p < .001). Controlling by the quality of guidance counselor interventions and empathetic disposition variables, the effect of interpersonal skills on students' counseling intention was significant and positive (b1 = .161; t = 3.762; p < .001). Controlling by the variables of quality of guidance counselor interventions and relational qualities, the effect of empathetic disposition on students' counseling intention is significant and positive (b2 = .175; t = 3.437; p < .001). In addition, the direct effect of the quality of the guidance counselor's interventions on students' counseling intention was significant and positive (c = .270; p < .001).



Note: ** The parameter is significant at the 1% risk level
*** The parameter is significant at the 0.1% risk level
a, b, c and d are the unstandardized coefficients of a linear regression
$a_1 \times d_{21} \times b_2$ estimated with bootstrap test (Hayes 2018, PROCESS Model 6)

Figure 2 ***Statistical plot of the tested search model of two serial mediators for student consultation intention***

The indirect effect of the quality of the guidance counselor's interventions on students' consultation intention, through interpersonal skills, is significant and positive (a1 x b1 = .062), with a 95% confidence interval excluding 0 (CI = [.025 to .105]). The indirect effect of the quality of the guidance counselor's interventions on students' counseling intention, through the counselor's empathetic disposition, is significant and positive (a2xb2 = .083), with a 95% confidence interval excluding 0 (CI = [.033 to .142]). Finally, the indirect effect of the quality of the guidance counselor's interventions on students' counseling intention, through successive mediators of interpersonal skills and empathetic disposition, is significant and positive (a x b1 x b2 = .034), with a 95% confidence interval excluding 0 (CI = [.013 to .58]). This result indicates complementary mediation (Hayes & Preacher, 2014).

Conclusion and discussion

The purpose of this study was to verify the influence of the quality of the guidance counselor's interventions on students' consultation intention, through the successive mediators of interpersonal skills and empathetic disposition.

Finally, these results are in agreement with the works of (Fonkoua, 2009; Fonkoua & Youtha, 2008; Guigue, 2001; Pouyaud & Cohen-Scali, 2016), which insist on the quality of the pedagogical interventions as factors that can maintain the interest of the students for a better learning and therefore, a better success.

In this sense, for Sikali (2009), quality interventions are then tasks that can arouse the interest of students to immerse themselves in guidance activities when they meet their needs in line with their personal and professional future project. Thus, if the guidance counsellor is to be creative and relevant in his or her interventions to captivate the students, and get them to identify their needs of which they are previously unaware. If we admit that each student envisages his or her future to a certain extent, the guidance counsellor will not bring them anything new, but he or she will propose a relevant approach that will awaken in these students the desire to consult the guidance counsellor and to become actively involved in guidance activities.

In view of our results, we agree with Pouyaud & Cohen-Scali (2016), who think that the non-realization of a quality of pedagogical interventions leads to multiple complaints and actions of claims that are manifested by stereotypes that border on the contempt of the

students towards the guidance counselors. Also, in his study, Sikali (2009) argues that many students do not consult guidance counselors because they do not find it interesting. This is because, in their words, "most guidance counselors are limited, stuck on courses of study that have outlived their usefulness and are contrary to the new expectations of the world," or "generally on little things like the timetable. This researcher noted that learners increasingly need information about the vocational training sought by companies. It is often noted that guidance counselors are unable to meet these needs. They are unable to mobilize all the resources necessary to create extrinsic motivation in students (Guigue, 2001). However, although the investment in physical resources is virtually nil, the demand for guidance continues to grow. The provision of a stimulating environment for guidance counseling and research for students should all be geared towards ensuring quality in guidance counseling services.

These findings emphasize the role of relational qualities in promoting adolescent counseling intention. Indeed, according to Guichard (2002), the effective counselor is genuinely interested in the happiness and well-being of his or her interlocutor. The counsellor must demonstrate relational authenticity, which implies being spontaneous without being impulsive or blunt, and not using cruel language. The majority of authors consider relational qualities as very important in the formation of intentions in clients in consultation. However, there is often a gap between relational quality and the actual experience of its manifestation. This is, in fact, an aspect that Pouyaud & Cohen-Scali (2016) considers fundamental. Insofar as counsellors are, according to them, most often full of theoretical knowledge, but in terms of the experience and experience that should accompany them, in this case their interventions, they are often lacking.

Relational skills require that the counsellor possess a humble spirit. An arrogant, egocentric or know-it-all guidance counsellor is likely to be a loss. A proud and haughty spirit will turn off teenagers and cause many more problems than it solves; and this is precisely what students' complaints are about as revealed in our pre-survey. A humble mind, on the other hand, will seek to understand rather than to be understood. The humble mind will never rush to give advice. Instead, it encourages the student to seek his or her own answers and directions.

Previous studies have noted the importance of the empathetic qualities of the guidance counsellor in fostering students' intent to consult in guidance counselling services. The quality of reception and listening in the process of orienting students requires a great deal of empathy, and could positively or negatively influence their behaviour in relation to the training activities and adapted services that the guidance counsellor provides within the institution. The guidance counsellor's contribution consists in breaking the ice between the learner and him/her. The guidance counselor should not be on the side of the administrators, but on the side of the students, so that the students can approach him or her easily and talk with him or her. The young Cameroonians who took part in this study showed little interest in consulting guidance counselors, contrary to what studies such as that of Fonkoua & Youtha (2008) might suggest. School and career guidance by parents seems to be preferred.

On the other hand, our results show that the quality of interventions has a positive influence on students' intention to consult guidance counselors, via relational qualities and empathic disposition. This result reinforces those of Pouyaud & Cohen-Scali (2016). This influence of the quality of interventions on students' consultation intentions means that the professional qualities of guidance counselors, and more specifically qualities such as relational ease and empathic disposition, is not neutral on young students' consultation intention. This analysis could be extended by seeking to identify the antecedents of these professional qualities in both consultation intention and actual consultation with guidance counselors. However, this study underscores the importance of taking into account the needs of students in order to provide them with appropriate guidance. To this end, we recall that the guidance needs model OCCOPPQ (2010) demonstrates that taking guidance needs into account is necessary for the adequate guidance of students.

Finally, in view of the work carried out and the results of this research, this study offers a method for evaluating the intention of consulting guidance services by students in general secondary schools. It allows the guidance department to intervene on certain dimensions of the student experience of its guidance services to increase their level of effectiveness.

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COLLABORATIVE EDUCATIONAL ROBOTICS FOR THE INCLUSION OF CHILDREN WITH DISABILITIES

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Abstract. *This literature review aims to collect systematically peer-reviewed research articles published in scientific journals that focus on the participation of children with disabilities in collaborative educational robotics activities. After systematic research, using three major digital scientific libraries, we full-screened eleven research studies that were implemented in inclusive or special settings and published during the period 2010-2022. These articles were selected as they described in detail the psycho-pedagogical methods that were used by the researchers to foster the participation of children with disabilities in collaborative educational robotics activities. The psycho-pedagogical methods have been categorized and presented critically in relation to the research methods and results. Finally, the discussion section of this review highlights the need of promoting collaborative methods in the context of inclusive educational robotics environments.*
Keywords: *Educational Robotics, inclusion, collaboration, autism, developmental intellectual disabilities, neurodevelopmental disorders*.

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Introduction

Educational Robotics (ER) is a promising field with great educational challenges. ER introduces children from an early age to programming, engaging them in STEM scientific concepts within an authentic and motivating educational context (Yuen et al., 2014). Through ER students improve creativity, logical reasoning, critical thinking (Blanchard et al., 2010; Miller et al., 2008; Yuen et al., 2014), problem-solving, social interaction, collaboration, and teamwork (Benitti, 2012). In the field of ER specific types of robots are being used. These are robots that can easily be programmed by children, themselves, in order to complete specific tasks or solve problems in the context of short scale projects (Pivetti et al., 2020). Students that are being engaged in ER projects work together in four main tasks: on designing, building, coding, and testing the educational robots (Yuen et al., 2014). Therefore, ER activities create a context in which students collaborate, sharing thoughts and synthesising ideas to enrich their solutions. More experienced can help less-experienced ones. Sufficient scaffolding by the teacher or by the more experienced peers support students to use higher-order cognitive processes in the zone of proximal development (Vygotsky, 1978). It is well documented that collaboration is connected with higher levels of achievement and positive attitudes to the learning and knowledge requirements process (Bruffee, 1995). Even programming is more effective when it is collaborative (McDowell et al., 2002).

Students, through collaboration, acquire social skills such as explicit, and implicit communication, monitoring, and coordination, and commitment to the common goals, persistence, and patience (Johnson & Hyde, 2003). Joint attention, request for help, management of conflict interventional introduction and social relations, as reported by ICF-CY, are the prerequisites for the effective collaboration (The International Classification of Functioning, Disability and Health for Children and Youth). Social skills have never been as important as they are in the 21st century, where mediated communication is established, and collaboration networks determine an individual's professional and social success.

The occurrence of possible difficulties in social skills can adversely affect the personal development and the social and/or professional relationships of the individual. Social dysfunctions are often more pronounced in people with mental, cognitive, or developmental disabilities, diagnosed with Neurodevelopmental Disorders (ND) (Autism Spectrum Disorder (ASD), Intellectual Disability (ID), Down Syndrome (DS), Attention Deficit Hyperactive Disorder (ADHD) Learning Disabilities (LD)) and social phobia. These conditions limit the ability to participate adequately and satisfactorily in social and learning environments (Bishop, 2010).

The increasing research interest in how the ER collaborative projects could facilitate the social interactions or motivate and enhance the collaboration of children with ND in special or inclusive educational settings is ascertained (Werry et al., 2001; Wainer et al., 2010; Lindsay, 2011; Tsiomi & Nanou, 2020; Nanou et al., 2022; Yuen et al., 2014). It is not only that ER reveals hidden potentials and skills (Karna-Lin et al., 2006), but also that supports and motivates the manifestation of social behaviours for children with disabilities in a variety of communication contexts. The characteristics and the role that the educational robots (ERs) are here to play, the learning objectives of the educational processes and the quality of the interactions that children with disabilities develop when they participate in the collaborative ER activities are the focus of research internationally (Huskens et al., 2013; Huijnen et al., 2019, Werry et al., 2001; Wainer et al., 2010; Lindsay, 2011; Tsiomi & Nanou, 2020; Nanou et al., 2022; Yuen et al., 2014). The strong research interest regarding the role of educational robots in the enhancement of social skills is developed in addition by the need to utilise ER in inclusive environments as, since 2000, the inclusive education through which the 21st-Century skills are equally cultivated for all students has been promoted internationally (UNESCO, 2016).

The present review aims to seek, through the international literature, remarkable research outcomes on the use of ER technologies as facilitators for social interaction of children with mental, cognitive, or developmental disabilities (ND) in ER collaborative educational settings and record the psycho-pedagogical methods that are being used to foster collaborative behaviours. This review aims at answering the following research questions:

1. Are there any published researches on collaboration of children or adolescences with ND during ER activities? Are those researches implemented in inclusive or special environments?
2. Do they present adaptations to foster participation in ER?
3. Do they present psycho-pedagogical methods to foster collaboration in ER?

Related Work

Most of the researches on the social skills' development of children with disabilities had been conducted by the researchers of Social Assistant Robots (SAR). SAR factions as social mediators to promote social interaction of children with autism or intellectual disabilities (Hedgecock et al., 2014). They support children with autism to initiate social interaction with a parent, a sibling, or a therapist (Fridin & Yaakobi, 2011), they are being used to access children's imitation ability or to teach simple coordinated behaviours (Billard et al., 2007). Social Assistant Robots, in general, support vulnerable groups, ranging in age, impairment, or need, through social interaction (Feil-Seifer & Matarić, 2005). The goal of SAR is to create the best circumstances for human-robot interaction for the purpose of giving vulnerable groups assistance or progress in learning or rehabilitation etc. There are a lot of literature reviews on the use of SAR for therapeutic reasons (Papakostas et al., 2021).

In the field of ER, systematic research reviews have been conducted to collect and analyse how the educational robots are being used in special educational for children with autism (Pennisi et al., 2016) or other kind of disabilities (Miguel Cruz et al., 2017). A more recent

review focused on collecting and analysing research focuses on ER projects for children with neurodevelopmental disorders (Pivetti et al., 2020). A most current review focus on ER researches that present results concerning inclusion of children with disabilities (Syriopoulou-Delli et al., 2021).

In order for ER to be accessible to children with ND, specific collaborative methods have to be designed, implemented, and assessed. It is well documented that collaborative robotics projects motivate students not only to participate in STEM activities and learn scientific concepts, but to develop collaborative behaviours and peer interaction. As established, there is a need to concentrate on research on ER with the aim of social skills development and especially collaboration skills of children with autism as ER activities are mainly collaborative (Yuen et al., 2014). Very few studies focus on robotics as a facilitator for social interaction among students with ND in special or inclusive settings (Nanou et al., 2022; Wainer et al., 2010). There is a lack of a systematic review of research focused on the use of educational robots as facilitators for social interaction and collaboration with participating children with ND.

Research Methodology

This literature review was based on the methodology of Grant & Booth (2009), to answer the research questions with the specific aim to collect the research on ER collaborative projects with the participation of children with ND (ASD, ID, DS, and ADHD, LD) that were published in peer-reviewed scientific journals after 2010 till 2022. The review research has been conducted from January 2022 to April 2022 in multiple digital libraries including Web of Science (webofknowledge.com), Scopus and Google Scholar. The keywords "intellectual and developmental disability", "educational robot(s)", and "collaboration" were applied in the text-search fields (i.e., title, abstract, keywords, full text), using several logical combinations of "AND" and "OR". Figure 1, depicts the selection process, showing each stage of the research procedure.

In total, 1063 references were found. After the removal of 250 duplicates remained 813 articles for the first screening. Three main inclusive criteria were applied:

- The study must be published in peer-reviewed journals in English
- The study must be dedicated to ND
- The study must focus on the use of one or more ERs (programmable by children)

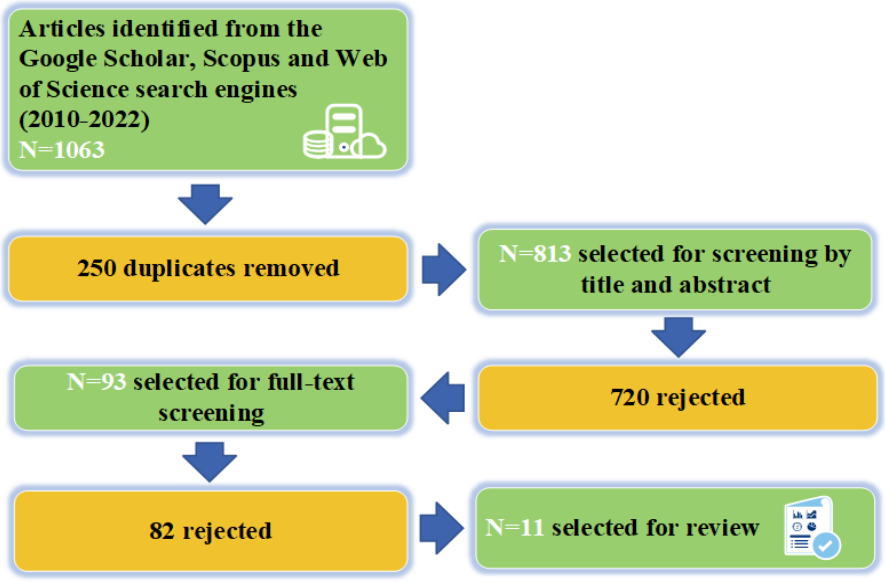

Figure 1 ***The selection process and each stage of the review***

We started by first screening the articles by their titles and abstracts based on the inclusion criteria. After the first screening, 720 articles were rejected and 93 remained for full-text screening. In the full screening, we applied two main inclusion criteria:

- The study must take place in a special or inclusive educational setting
- The study must include an ER collaboration experiment or evaluated model of or a design of an associated product for use by participant/s in teamwork

After a thorough reading, 82 articles were rejected, and 11 research studies remained for the review that met the inclusion criteria.

Results

In further analysis, as presented in Table 1, we reviewed eleven (11) research studies according to the following methodological elements, type of intellectual or developmental disability, setting (special/inclusive), age range, ER kit, the aim of the research, adaptations, duration of the intervention, psycho-pedagogical method of team collaboration, research methods, and results.

The eleven research articles that were selected for analysis constitute empirical research on collaborative ER projects that were conducted with the participation of a group of children or adolescents with all kinds of ND, aged 5-17 years old. Five of the selected research studies (45%) took place in inclusive settings, two in inclusive schools (n=2, per=18%), two in inclusive after school clubs (n=2, per=18%) and one in a summer school club (n=1, per=9%). Six of them (n=6, per=54%) took place in special education settings, two in special schools (n=2, per=18%), two in hospitals (n=2, per=18%), two in after School clubs (n=2, 18%).

Table 1 ***Research Teams in relationship with the participants, the setting, and the aim of the research study***

RESEARCH TEAM	TYPE OF DISABILITY	INCLUSIVE APPROACH	RARTICIPANTS/ GROUPS	AGE RANGE	SETTING	ER Kit	AIM
Nanou et al., 2022	ASD level2/TD	Yes	Four (4) TD and two (2) ASD level 2 /3 children one TD and ASD	10–11 years old	After school club	LEGO NXT 2.0 Mindstorms	Present effects of SaSS Training in the participation of children with Level 2 ASD as “suppliers”, in teamwork with typical peers during the inclusive ER activities

RESEARCH TEAM	TYPE OF DISABILITY	INCLUSIVE APPROACH	RARTICIPANTS/ GROUPS	AGE RANGE	SETTING	ER Kit	AIM
Chaidi et al., 2021	All kinds	Yes	Twelve (12) children formed in two groups of six.	9-12 years old	Primary general school	LEGO Boost kit	The project aims to introduce "coding and robotics" to primary school students with fewer opportunities.
Di Lieto et al., 2020	All kinds	Yes	187 children with typical developme nt and 42 children with SN (in total 13 classes from nine schools) in groups of 5 or 6 children	Mean age 6 years old	General school	Bee-Bot and Pro-Bot	To verify the efficacy of the ER-Lab on Executive Functions in children with Special Needs for the first time by using an RCT within their school environment
Fachantidis et al., 2020	ASD and intellectual disabilities	Yes	Twenty-two (22) students (14 boys and 8 girls) who were in the same class. 21 were typically developing children and one presented with ASD / small groups	9-10 years old	General inclusive school	LEGO based robot	Whether intervention using ER in general classroom, will improve the level of educational adjustment of a child with ASD, help develop communication and social skills and lead to a reduction in undesirable behaviors
Bargagna et al., 2019	Down syndrome (DS)	No	Eight (8) children / 3 children per group	5-12 years old	ER laborator y (ER-Lab)	Bee-Bot	To evaluate ER training feasibility, adapting methodology and previously

RESEARCH TEAM	TYPE OF DISABILITY	INCLUSIVE APPROACH	RARTICIPANTS/ GROUPS	AGE RANGE	SETTING	ER Kit	AIM
							experimented activities to promote executive functions in DS children
Lindsay et al., 2019	All kinds	No	Ten (10) children working in pairs	6-9 years old	Special / pediatric hospital	LEGO WeDo 2.0	How a group-based robotics program for children with disabilities impacted their STEM activation
			Ten (10) children working in group of 2 or 3	10-14 years old		LEGO Mindstorms	
Albo-Canals et al., 2018	Severe ASD with cognitive impairments	No	Twelve (12) participants / 2 children per group	6-14 years old	Special school	KIBO programmable toy robot	The feasibility of using the KIBO Robot as an engaging platform to positively impact social and emotional development in children with ASD
Lindsay & Lam, 2018	ASD, physical disability (cerebral palsy, Duchenne muscular dystrophy, etc.), brain injury	No	Twenty-one (21) children / 2 children per group / 2 children per group	6-8 years old	Special /pediatric hospital	LEGO Mindstorms and WeDo	To explore types of play, solitary, parallel, and cooperative play
Lindsay & Hounsell, 2016	Various	No	Ten (10) children working in pairs or groups of three	6–8 years old	Special /pediatric hospital	LEGO WeDo 2.0	To understand the development and implementation of an adapted robotics program to enhance the participation of

RESEARCH TEAM	TYPE OF DISABILITY	INCLUSIVE APPROACH	RARTICIPANTS/ GROUPS	AGE RANGE	SETTING	ER Kit	AIM
	Various	No	Ten (10) children working in groups of 3 or 4	9–14 years old		LEGO Mindstorms	youth with disabilities while fostering an interest in STEM
Yuen et al., 2014	High functioning ASD (Level1)	Yes	Ten (10) typical and two (2) ASD in groups with 2 or 3	12-14 years old	STEM education center after school	LEGO NXT 2.0 Mindstorms	To evaluate the extent to which students with ASD interact with their peers more during structured versus unstructured settings.
Wainer et al., 2010	High functioning ASD (Level1)	No	Eight (8) children / 2 or 3 children in a group	8–14 years old	After school club	LEGO Mindstorms NXT	To promote social interaction of middle school children with ASD, foster collaboration and investigate how ER could mediate social interaction if collaborative behaviour could be generalized

Independently of the number of participants, in most of the research, (9/11, per=81%) they were divided into groups of 2 or 3 children. An exception was the two of the selected research studies that were conducted in school settings where the participants were divided into groups of 6 children. The groups in inclusive settings were in an analogy 1:2 (1 child with Disabilities/2 Typical Development), or 1:1 (1 Dis/1 TD). Only two of the selected researchers addressed preschool children, (n=1, per=18%) while the other ten addressed primary school children (6-14 years old). Concerning the kind of robot, two research teams used Bee-Bot (n=2, per=18%), three used LEGO WeDo (n=3, per=27%), one the KIBO (n=1, per=9%), and the other five the LEGO Mindstorms (n=5, per=45%). Concerning the aim of the studies seven (63%) were focused on social skills and especially, collaboration (n=2, 18%), participation (n=2, per=18%), interaction (n=1, per=9%), emotional 1 (n=1, 9%), and communication (n=1, per=9%). The next four researchers (36%) addressed the investigation of the teamwork and collaboration in cognitive domains such as executive functions (n=2, per=18%), STEM (n=1, per=9%), and coding (n=1, per=9%).

The mean time of the collaborative ER projects duration was 14 h, SD 5,9. In more detail, in three articles (36%) the authors implemented ER projects for 16,5-18 h, in four (36%) for 10-12 h, in one for 27 h, in another one for 8h, and only one for 39,5h (7,5 hours of training were held in class while 32 hours took place online). The longest ER projects took place in inclusive schools with the use of the LEGO Mindstorms kit and the shortest in disabled pre-schoolers (DS) with the Bee-Bot.

In the exception of three of the selected research articles, where the staff was not specified, an expert in ER was included in the support team of the children in the inclusive or special setting, in parallel with the teachers or the therapists, in order for the ER activities to be performed. Volunteers and therapists or teachers supported the ER education of the children with disabilities at schools inside the hospital or in the afterschool activities.

Concerning the methods of collaboration among the members of the group of participants in ER activities, two of the selected studies (18%) emphasize the need to be introduced specific rules necessary for group collaboration, and in two studies (18%) there are not any methods that were introduced as their aim was to observe how the interaction and collaboration will be developed spontaneously between the members of the group while playing or programming of ER tools, while in the remaining three (27%) of the selected research studies more general indirect methods are described.

Indirect methods of collaboration that are being presented in three studies (27%) are presented below:

- small groups division or one to one collaboration (3/3)
- gradually integration from one-to-one interaction with the adult mediation to bigger groups (1/3)
- group thinking (1/3)
- adult mediation for relational reinforcement (3/3)
- Direct Methods of collaboration are described as being implemented in the five of the selected articles (45%) assigning of specific roles from the beginning of the teamwork. Planner - for reading the instructions, Searcher- for finding peace, Builder - for constructing the ER model. In another study, the roles had different names were changed to engineer supplier and builder, but their work was the same (3/5):
- collaboration script (1/5)
- SAS Strategy for successful collaboration between specific roles (the supplier and the builder) (1/5)
- prompts to enhance turn-taking (2/5)
- prompts to assigning roles (1/5)
- staying on task (2/5)
- changing roles (1/5)
- Six of the selected studies (54%) describe how the activities and the ER equipment were adapted in order to be accessible to children with ND and enhance their successful inclusion.

These adaptations concern:

- structuring of the lessons (5/5)
- systematic cycles of start-pause-end of activities considering low attention spans (3/5)
- reduction of possible sources of distraction (1/5)
- an easier narrative context (1/5)
- adapted Bee-Bot card keys (special larger sensors, switched on/off sensors of 65 mm diameter (Jelly Bean), were inserted in the place of the original ones) (2/5)
- time was progressively increased (1/5)
- frequent breaks were proposed (1/5)
- token economy strategies (2/5)

- relational reinforcements (1/5)
- Jelly Bean sensors could be temporarily put off-line, thus limiting the choices of planning and making the activities simpler (1/5)
- specific goals for each lesson with an emphasis on cooperation (2/5)
- bigger monitors (2/5)
- tablets (2/5)
- adequate space around the tables (1/5)
- blended learning accessible for children with disabilities (1/5)

Concerning the methodology and the results of the research studies 10/11 (90%) based their results on qualitative methods direct observations with two observers, and use of interrater validity tools, or videotaped sessions to assess collaboration, and interviews with parents and staff and six research studies additionally used pre-post ER intervention assessments methods. Only in one research study, did there was not a specification of the research methodology. Most of the articles (10/11, 90%) presents improvements in social skills, in collaboration teamwork, in social inclusion, in social interactions improvement, in communication and cooperation skills. It is documented that the sense of teamwork during the ER activities created a context of sharing the material, improved the cooperative play and collaborative learning, and fostered interactions/collaborations with other children. Concerning the research methodology, 10/11 (90%) describe in detail the efficient description of the use of the statistical method of interrater agreement when the observation method was used for data selection and the triangulation methods of reliability. Only in one of the selected articles, there is a detailed description of the educational processes and the aims of the educational intervention, but the results are described without a detailed description of the methodology. In all the research studies, the limitation of the existence of the control group was mentioned. The outcomes of our review work related to the methodology and the results of each research team are presented in Table 2.

Table 2 ***Research teams in relationship with the research methodology and the results***

RESEARCH TEAM	PRE- AND POST-ASSESSMENT	QUALITATIVE METHODS OF ASSESSMENT DURING THE ER ACTIVITIES	RESULTS
Nanou et al., 2022	Autonomous participation in the ER activities	Observation of the application of SASS / 2 observers in each child protocol / Cohens kappa	The barriers of the participation of the children with autism in teamwork with their typical peers in ER reduced.
Chaidi et al., 2021	Not Specified (NS)	Not Specified (NS)	Socialized and felt accepted, thus boosting their self-esteem
Di Lieto et al., 2020	Standardized neuropsychological tests and qualitative measures of robotic-programming skills	Teachers' qualitative observations	Social inclusion efficient learning motivation and interest in activities and in social interactions
Fachantidis et al., 2020	Sociometric test	Frequency of behaviour videotaped + 2 observers / interrater agreement. interview with the mothers	Improvement in communication and cooperation skills, in focus and completion of the tasks, accepted by 2 classmates

RESEARCH TEAM	PRE- AND POST-ASSESSMENT	QUALITATIVE METHODS OF ASSESSMENT DURING THE ER ACTIVITIES	RESULTS
Bargagna et al., 2019	Pre and post assessments, standardized tests	Not Specified (NS)	Sense of teamwork among peers and supported imitation learning a qualitative enhancement of passive visuospatial memory span (NS changes)
Lindsay et al., 2019	Questionnaire on STEAM activation/participation	Parent'svinterviews	Improvement in STEAM activation
Albo-Canals et al., 2018	No	Observational checklists/video recordings of all the sessions / PTD Engagement Checklist	Create a context of sharing the material, as we wanted to validate the usefulness of KIBO by itself
Lindsay & Lam, 2018	No	Direct observations / four researchers / play skills / disruptive behaviours interviews with parents and staff	10/21 children manifested cooperative play by the last two weeks of the programme, the majority (62–71%) of the children shared.
Lindsay & Hounsell, 2016	Pre-post surveys	Observation protocols, interviews with parents and staff	Enjoy and learn terminology, and have experience with programming and building robot
Yuen et al., 2014	No	Observation of social interaction / Visual analysis / Interobserver agreement	Collaborative learning environments increased the duration of social interaction for two middle school students with ASD
Wainer et al., 2010	No	Observation of social interaction / Interobserver agreement / structured interviews	Improved their interactions / collaborations with other children

Discussion

This review provides answers to the research questions that were set at the beginning of this work. Concerning the 1st research question, we retrieved few peer-reviewed articles published in scientific journals since 2010 with a focus on collaborative methods in ER activities for children with ND. The lack of research studies in this specific domain was recognised by the first studies in the field (Wainer et al., 2010; Yuen et al., 2014). It must be underscored that 12 years later (2022), little progress had been made in the specific research domain. Although it is strongly documented that ER projects are collaborative in nature (Yuen et al., 2014) and ER has already been introduced into the classroom, from kindergarten through high school (Nanou et al., 2022) we have few scientific results about how groups of people with disabilities in special or inclusive ER settings work together, and how collaboration and collaborative working might be supported. The lack of research results in the field deprives the scientific community of evidence-based empirical data that are necessary for the enhancement

of equal participation of children with disabilities in ER putting them at risk of not achieving their goals and not being able to engage in ER school or afterschool activities.

It is encouraging that almost half of the research studies that met the criteria had been conducted in inclusive settings. Particular attention should be paid to the last four research studies from 2020 to 2022 (Chaidi et al., 2021; Di Lieto et al., 2020; Fachantidis et al., 2020; Nanou et al., 2022) that were selected by our research review on collaborative ER projects are in inclusive settings and the most three in public schools. One was conducted in an afterschool inclusive setting. As the learning environment, all over the world, comes more inclusive it is hopeful that research on inclusive practices concerning ER collaborative activities has started to attract the interest of the researchers in the field (Chaidi et al., 2021; Fachantidis et al., 2020; Nanou et al., 2022; Tsiomi & Nanou, 2020).

LEGO Mindstorms, LEGO WeDo, Bee-Bot and in one study KIBO educational robotics kits were used in collaborative ER activities. These kits are potentially suitable for children with disabilities and especially for autism. One of the greatest advantages of LEGO Mindstorms and WeDo for the participation of children with ASD, is that the model structure for the assembling step by step is represented in the detailed manual that is being included in the kit. These detailed visually structured manuals describe all the facilitated play options, step by step (Lauwaert, 2008). Through the detailed manuals, the structured activities are visually organized and presented in a planned, sequential, and logical way. This kind of manual is effective in facilitating the constructing play of children with ASD (Hampshire & Hourcade, 2014). Bee-Bot is a referee significand device promoting interest and interaction with adults and peers. Children can easily control the Bee-Bot using the buttons at its back (Bargagna et al., 2019).

Concerning the 2nd research question for the adaptations of the equipment or the place, it was found only six of the selected studies (54%) described in detail the adaptations of the ER activities to be accessible to children with disabilities and enhance their successful inclusion. These adaptations include a) structuring of the lessons through b) use of token economy strategies c) through the assignment of specific goals for each lesson with an emphasis on cooperation, d) bigger monitors, c) tablets, d) systematic cycles of start-pause-end of activities considering low attention spans e) adapted Bee-Bot f) card keys, are being described adaptations by more than one researches. As for structuring referred by five of the six research studies (Albo-Canals et al., 2018; Lindsay, 2011; Lindsay et al., 2019; Lindsay & Hounsell, 2017; Nanou et al., 2022).

Concerning the 3rd research question on the specific methods that are being used to foster collaboration only five of the 11 researchers describe specific methods in order for the collaboration to be developed. three of the five research studies (Fachantidis et al., 2020; Lindsay & Lam, 2018; Nanou et al., 2022) use the method of specific role assigning but only one supported scaffolding of the process of collaboration using a specific strategy (Nanou et al., 2020). According to (Yuen et al., 2014) children with developmental disabilities without proper scaffolding little interaction can develop with peers and gain little from the collaboration. Although scaffolding, derived from the Zone of Proximal Development, (Vygotsky, 1992) has been recognized as the most effective approach and it is known that there is a need for instructional support for both team learning outcomes and individual learning outcomes to be of high quality (Kollar et al., 2006) research studies had a little focus on how collaboration could effectively be supported. Further designs of collaborative robotics projects that include students with ASD would integrate more scaffolds to encourage more intergroup communication and interaction, increase student-initiated participation, and improve collaboration.

Conclusion

This work collected peer-reviewed research articles published in scientific journals that focus on the participation of children with Neurodevelopmental Disorders in collaborative and inclusive educational robotics activities. After a systematic review, using three major digital scientific libraries, we selected eleven research articles published in scientific journals for full review. These articles satisfy most of our criteria and use qualitative methods of research with sufficient description of the research procedure, tools, and methods of data collection. In this review, the proposed methodologies in literature are categorised and presented critically. The research concerning the adaptations and the psycho-pedagogical methods that foster collaboration of children with ND in ER activities is limited till now. We highlight the need of promoting collaborative methods in the context of inclusive ER environments as the results are promising for the development of collaborative skills of children with mental, cognitive, or developmental disabilities, especially in inclusive context. Additionally, to the psycho-pedagogical collaborative methods, the design of educational robots with emphasis on inclusive characteristics could foster the inclusion of children with disabilities in ER and support their accessibility to 21rts century's' curriculum.

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SCHOOL GOVERNING BODY CHAIRPERSONS' PERCEPTION ON THEIR ACCOUNTABILITY IN THE RUNNING OF SCHOOLS

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Abstract. *The concept of accountability has been portrayed as vital and pertinent in the field of public administration in general and education management in particular for several years. This is important at a time that stakeholders like educators have misconceptualised the purpose of accountability to mean inspection or the lack of trust which makes them uncomfortable. This study sought to develop a conceptual framework of School Governing Body (SGB) Chairperson's perception of their accountability in selected schools with the purpose of facilitating learning and teaching outcomes. A qualitative paradigm using a multiple case study design was adopted. Data were collected through in-depth individual interviews with 3 chairpersons. The participants were purposively selected because of our discernment that as representatives on the school governing boards, they were accountable to parents as part of their managerial responsibilities. Thematic analysis of the data was used to identify emerging themes and categories. The findings reveal clarity on the practice of accountability in the broad spectrum of school management and administration as well as with policy making and implementation.*
Keywords: *Accountability; Education management; Responsibility; School base management; SGB Chairpersons; School governing board.*

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Introduction

The concept of accountability has been portrayed as vital and pertinent towards the improvement of public service like the educational sector for many years (Steiner, Kaiser, Tapscott, & Navarro, 2018). Coupled with this development, the dawn of democracy in South Africa heralded a new culture and approach to service delivery that has taken the form of decentration with accountability at the centre stage of education management (Nxumalo, Gilson, Goudge, Tsofa, Cleary, Barasa, & Molyneux, 2018). Implicit in this new culture is the acknowledgement that public service must be re-engineered to meet the imperatives of an emerging developmental state. To this effect, accountability and responsiveness have become central organising principles for service delivery (Nxumalo et al., 2018) in what Seakamela, (2011) previously describes as the lack of trust in the ability of schools to meet the needs of society. Subsequently, different meaning and purpose of accountability have been linked to different people depending on the context to which it is applied with different objectives. At its most basic, accountability means to hold someone to account or to have the obligation to deliver an account as well as being able to do so. According to West, Mattei, and Roberts (2011), accountability is a circumstance under which individual stakeholders are liable to review performance and the application of sanctions if their decisions and actions fall short of satisfying those with whom they are in an accountability relationship. Another description is that to be accountable is to be required to explain or justify one's action or behaviour. These perhaps explain why Hall, Frink, and Buckley (2015) say that accountability

remains a fundamental element of every community and the organisations that operate within them with both constructive and destructive tendencies. In effect the whole idea about accountability should be use for the right reasons which amongst others is to improve on the welfare of the organisation which of course is part of the responsibility of the SGB.

In an earlier confirmation to the relevance of accountability, Young (2016) alludes that School Governing Bodies (SGBs) in the case of England have substantial control and responsibilities regarding the education of learners. Thus, with such responsibilities conferred on the SGBs through decentralisation, they deserve to account to a designated authority. Nonetheless, Young (2016) mention that despite increased school autonomy, SGBs are increasingly constrained in considering the aims of education, as their focus is now placed on the intrinsic and or extrinsic goods of effectiveness which according to Ryan (2019) are very complex and could result in a series of challenges. These challenges of accountability to SGB among others include the lack of technically qualified human cadres (personnel) who are needed for the implementation of accountability, rarity of training programs that are directed to the implementation of accountability in work, limited availability of appropriate measures to measure performance (Kentab, 2016), the manipulation of accountability requirements and less rational decision making (Ryan, 2019) Notwithstanding, accountability has a whole range of benefits and interests which include working on improving the performance and encouraging employees to participate more in the making of administrative decisions.

Just like in politics and the legal sector, those charged with the responsibility of managing other public sectors like the school principal (Skedsmo & Huber, 2019), is equally expected to give an account or be answerable to the public or community which it serves. With learner performance being one of the key areas of concern for stakeholders in Schools of Africa, Smith and Holloway (2020) are of the concern that the process of evaluating school performance based on learner performance measures narrowly defines educator quality. Hence, the drive to raise standard by school authorities according to Lewis, and Hardy, (2015) has therefore resulted in a more tightly curricula frameworks and testing regimes measured by test scores though not limited to those. Regarding school properties which is amongst the jurisdiction of SGB chairpersons, Wellington (2015) earlier explain that if learners for instance, contributes to any form of destruction, a strategy for the collection of damages would be initiated which may include withholding the learners report until the required compensation is made. Such decisions have proven to be problematic to the SGBs because in some instances, they are challenged by parents of these learners in favour of their loved ones (Maphosa & Shumba, 2010). Seemingly, this could further become a huge set back to the very measure(s) of accountability to which the SGB is bound to protect. In consideration with the above scenario, qualitative case study approach was adopted for the study involving experienced SGB chairpersons through face to face interviews. The objectives of the study among others include the following:

- To ascertain the connotation and notion of accountability to the SGB chairpersons in secondary schools of South Africa.
- To ascertain the pattern of accountability as implemented by SGB in secondary schools of South Africa.
- To ascertain the magnitude of accountability in secondary schools of South Africa.
- To ascertain specific responsibilities by SGB chairpersons regarding accountability.

Review of Literature

In addressing the literature on accountability in schools, the authors took into considerable the fact that a greater part of the existing review covers mostly Europe and America as indicated by various authors (Wellington, 2015; West et al., 2011; Suspitsyna, 2010). This is opposed to Africa and South Africa in particular where most of the existing literature centres around school governance and public service delivery (Nxumalo et al., 2018; Steiner et al., 2018; Heystek, 2011). According to Suspitsyna (2010) for more than a decade, quality assurance and accountability have reigned over education policy agendas on a vast geographic territory like the United States of America (USA) characterised by the production of policies and practices that are aimed at controlling and managing educational quality. In recent times across Africa, accountability has mostly been associated to service delivery in public institutions and organisation like the school (Nxumalo et al., 2018). Such institutional changes according to Skedsmo and Huber (2019) result from concerns relating to performance, fairness, and efficiency of the education system to which key reform elements such as standardised testing, monitoring, evaluation, and accountability become a necessity. Expounding from an educational management perspective the authors believe that school principals for instance are exposed to new controls and regulations, growth, increasing competition, technological developments, and changes in the work force. In the middle of these changing circumstances, the SGBs still have that responsibility to ensure that learner performance amongst other things is improved with or without which they would be called to account.

In South Africa, the implementation of no fee policy for schools and the move towards School Based Management (SBM) reform in education has been a concomitant development in the South African educational system that has necessitated the increased need for accountability from school authorities. Such institutional changes and or development which according to Skedsmo, and Huber (2019) are unavoidable, is like Wilkins (2015) allusion that since the 1980s in England, state schools have been required to ensure maximum transparency and accountability through the use of indicators (also known as performance matric) resulting from the private sector and globally circulating discourses of good governance. The move towards SBM or democracy in the school governance of SA is further reiterated in Moorosi, Bantwini, Molale, and Diko (2020), when they posit that the South African Schools Act (SASA) of 1996 provided for democratic governance of schools and targeted redress as one of the policies ushered in by the new democratic dispensation to bridge the gap of inequalities. Though this was partly done with the intension to ensure uniformity in a school context, it implementation varies from one school location to the other. This is important as Heystek (2011) clarifies that the decentralisation of powers to the schools communities does not in any way means that the schools have become autonomous but rather, it assumes that the school community is in a better place to make certain decisions about the school. Hence, it would work well for school communities where both the SMT and SGBs comprises of educated individuals.

Moreover, the task team report on education management development (RSA, 1996b) and the legislation such as the South African School Act (RSA, 1996a) advocates the establishment of a democratic system of school governance in the form of SGB. The body comprises of stakeholders including parents, school principals (ex-officio member), educators, learner representatives and non-members of staff who administer the management of schools (Bagarette, 2014), with parents constituting most of the members. Hence, the introduction of SBM and a related change such as the introduction of SGBs can be regarded as issues that have many sides to investigate. This article is further inspired by Moorosi et al. (2020) in their study on school governance where they reveal

that SASA propagates the establishment of SGBs whose role among others include budgeting, maintenance of school property, the implementation of policy and the authority to employ teaching and non-teaching staff. Executing these task involves the sharing of responsibilities with other stakeholders including parents, with considerable powers on improving the quality of education in the hands of the SGB. This by implication means that managerial hierarchies in the form of managerial leadership (Romme, 2019) as well as understanding the concept of accountability and its implementation are core components of school governance that should be investigated. The degree to which SGB chairpersons are required to render an account is indeed a central issue for investigation through their perspective.

The Nature and Purpose of Educational Accountability

When the historical development of accountability in Education is reviewed, it must be kept in mind that in general terms, it has to do with a state of being answerable for something to someone (Spaull, 2013). Although the idea of accountability would denote different meanings depending on the context, in practice 'being accountable' means performing certain functions to the satisfaction of a person or interest group whilst complying with the standards set by a higher authority in a managerial leadership fashion (Romme, 2019). Applying these principles to a school as an organisation, it must be emphasised that schools are by nature highly structured organisations with clear positions of hierarchy and accountability. Notwithstanding, Fidan and Balci (2017) believe that a school system is closely linked to the reality that they are complex organisations, in an ever changing and complexifying environment, peopled by complex individuals, often drawn from a range of cultures that are working towards the goal of achieving effective learning outcome. According to Seakamela (2011) and Bush (2008) over countries like Zambia and Tanzania suggest that the educational system is faced with a "wholesale systematic decay" to which parents pay very little attention to the educational success of their children while relaying heavily on the effort of the educators. In the case of South Africa, the dawn of democracy indicated a new culture and approach to learning and change in service delivery which no doubt warrants severe accountability actions to be taken. One of these changes was witnessed upon the institution of democracy in 1994 where the autonomy was shifted partially, if not completely to the schools through the creation of SGBs and SMTs (RSA, 1996b). Inherent in this new culture is the acknowledgement that education had to be re-engineered to meet the imperatives of an emerging developmental state which amongst others include the need for stakeholders to be accountable over public funds that has been entrusted on them (Godwin, Ntayi, & Munene, 2021). Unfortunately, Heystek (2011) posits that over three decades down the line, there is yet to be any clear evidence in the link between the sovereignty of schools and improved quality education.

An earlier postulation by Fleisch (2006) clarifies that over 20 theories have been developed to explain why pressure or accountability is an agent of change in schools with very poor performance. It seems therefore that pressure and threat of redeployment of stakeholders for poor performance and ultimately closure of schools might result in high stake accountability in schools. On the contrary, Steiner *et al.* (2018) refute that the persistent call for more accountability in the public sector in general has placed education systems, particularly those in developing countries like SA, under intense public scrutiny because effective schooling is an imperative for a democratic society. Thus, expectations for greater accountability from SGB chairpersons might lead to increased monitoring and evaluation of the schooling system through the development of indicator systems. Hence, attempts to address accountability related problems according to Steiner et al.

(2018), have rather been characterised by the lack of accountability and blame shifting, while the system remains badly in need of professional management and support from all interested parties. This is closely linked to a previous remark by Seakamela (2011) that governments in many countries responded to accountability pressures by taking the lead in setting goals, establishing priorities and building frameworks for accountability while at the same time shifting authority and responsibility for key functions to school level as defined by democratic principles.

The ability of schools to develop the curriculum and improve learning and teaching to achieve school objectives no doubt depends on the availability of resources (Mestry & Bisschoff, 2009). The main objective of SGBs and their chairpersons is therefore on their capacity to share the limited finances between human and physical resources at schools aimed at achieving effective educational goals which often necessitate the need for decentralisation. Thus, Hooge, Burns, and Wilkoszewski (2012) indicates that decentralisation does not only mean more local governmental control of schools but also more control of education by local non-governmental actors like state-dependent private schools and/or school governing boards. Mestry and Ndhlovu (2014) in fact stated with reference to Section 34 of the SASA that it is the responsibility of the SGBs to supplement state funding through school fees and other fundraising initiatives which they deem necessary. This is with the assumption that officials like the managers, leaders and other professionals who are closest to local operations know best what should be done and to take full initiatives and control to exercise discretionary power.

Theoretical Framework

According to Wellington (2015), a theory in educational research is only worthy of the name if it helps us to explain phenomena as well as aids our understanding of these phenomena. Therefore, a theory must be capable of bringing out certain hidden inferences in the educational environment to facilitate learning and teaching. Amongst other theories used in educational management and leadership research, the participative and or collegial leadership theory was selected as the most pertinent for this article. Though similar, various researchers have identified this theory differently as follows; while Naidu, Joubert, Mestry, Mosoge, and Ngcobo (2012) talks about collegial theory, Bush and Middlewood (2013) talk of participative theory. According to Naidu *et al* (2012) in their collegial theory, it requires determining policies and making decisions through a process of discussion leading to consensus. Whereas Bush and Middlewood (2013) say that participation simply means the opportunity of engaging staffs in the process of decision making. One underlying issue as gathered by these authors is on the fact that all the authors above talk about the importance of engaging stakeholders by taking into consideration their ideas and suggestions to arrive at a common value as defined by the mission and vision of the school.

Furthermore, both versions of the theory draw our attention to the view that the power of leadership should be distributed or shared amongst some, if not all stakeholders in the organisation who are believed to have a mutual understanding about the objectives of the institution. But not without an effective empowerment of school principals in the case of public schools towards decision-making in the middle of radical social, political, and economic changes in the country (Mestry, 2017). Practically, and in relation to this article of accountability, the relevance of the theory lies on the bonding amongst stakeholders in a collaborative fashion as emphasis by Shaked (2018) where it is believed that it would help to alleviate pressure from senior leaders like principals and the SGB chairperson. Because the introduction of a new democratic dispensation in South Africa as earlier observed brought about new educational laws that made way for school

based management, it follows that managerial hierarchies as well as the execution of responsibilities between different stakeholders and the state are core components of accountability that should be investigated. Notwithstanding, such democratic dispensation further warrants a kind of participative leadership which according to Rolková, and Farkašová, (2015) entails encouragement to participate, collaboration, encourage the flow of ideas in decision making, and guidance. Though seem controversial, this theory according to Bagarette (2014) can be very instrumental in organisations like the school where a high level of accountability is needed in the learning and teaching process as well as the school governance thereof.

Methodology

The article adopted a qualitative case study approach involving township secondary schools of the North West Province of South Africa. There is equally a trace of the ethnographic component following lengthy period of interaction with the participants. The authors found the approach to be relevant because it enabled us to collect rich qualitative data based on the SGB chairpersons understanding and implementation of school governance through accountability in their various schools. According to Creswell (2009), case studies are strategies of inquiry in which the researcher explores in-depth a programme, event, activity, process, of one or more individuals, as it is the case of this article involving three experienced SGB chairpersons from three purposively selected township secondary schools. These SGB chairpersons ranged from the most educated to the uneducated individuals. Our selection process was both deliberate and flexible as emphasised by Hennink, Hutter, and Bailey (2011) because it involved people of specific characteristics and experience of the topic, hence can provide detailed understanding on our research concern.
Data collection was done through individual face to face interviews with all three participants who were encouraged to tell their stories regarding accountability issues in the running of schools. Beside interview, participant observation was equally performed. This was done by attending three crucial SGB monthly assessment meetings where the authors spend ample time with participants at the various sites, to understand assumptions, values, beliefs, and experience of the SGB chairpersons in school governance and accountability. Each interview that lasted for at most an hour and at least forty minutes was transcribed verbatim. The inductive data analysis approach which is thematic in nature was adopted based on the following steps: aggregation of data according to questions, identification of patterns in the data, categorisation and open coding of data in terms of common emerging themes. Also, because observation was used, the triangulation of data which entails enhancing the understanding of a phenomenon was used during the discussion phase to ensure a valid and reliable conclusion of results.

Findings and Discussion

The results were presented under the various themes with direct quotations from one participant to the other, accompanied by a discussion of the findings.

Theme 1: The connotation and nature of accountability in schools

The different SGB chairpersons were asked to describe the meaning of the concept accountability based on their various understanding. From the results obtained, 2 SGB chairpersons collectively describe the concept accountability to mean giving feedback over a task that has been entrusted on you to perform. Similarly, another opinion was shared by relating the

response to the performance of given responsibilities in preparation for any future questioning. A direct quotation from the participants read as follows: *Accountability means performing expected duties as per your contract and also ensuring that you do all those activities that are being assigned to you diligently (CP1). Also, that accountability refers to individuals or people at the workplace having to perform certain responsibilities that carries along the mission and vision of the school (CP2). And lastly, that accountability is the act of making sure that your activities as a leader aligns with vision and mission of the school (CP3).*

Arguably like the view of Young (2016), SGBs in England have substantial control and responsibilities regarding the education of learners. This by implication means that accountability involves three key aspect namely people, responsibilities, and reporting in what Spaull (2013) simply describe as a state of being answerable for something to someone. With such huge responsibilities delegated to them, SGB chairpersons are therefore expected not only to report back to the board members, but also owe a responsibility to report to the community through responsible authorities like the SGB chairpersons in a collective fashion by involving everyone in the decision-making process.

A further examination of the different views above in cognisance with observation during our visit to the study sites, reveals that as far as accountability is concern every SGB member has a task to perform, as well as knows what is expected of them. But reporting back when called to do so often makes them uncomfortable as they often see the leader under whom they are expected to report back to be bossy or rather too demanding. However, because the use of terminologies is largely guided by the idea the authors intend to disclose, participants were asked to identify other possible concepts which to them have similar meaning and which would make them more comfortable in place of accountability. Participant CP3 revealed saying "responsibility is a concept closely related to accountability because, once you are responsible over something, you must be able to account over any decision that you take. Thus, responsibility can be use in place of accountability".

Similarly, Participant CP1 affirmed that the concept answerability is closely related to accountability as earlier suggested by Spaull (2013). This is because a school is a public entity entrusted upon a group of stakeholders, who are expected to report back or be answerable to the public when called upon to do so. It was therefore considered to be preferable as opposed to accountability which according to CP1, "it makes one seems as though you have committed a crime". Whichever way the authors look at it, accountability is accountability and requires some form of a participative effort from the entire SGB board in what Bush and Middlewood (2013) says that opportunities must be given to other members of the board including principals to engage in the process of decision making. Despite the misconception however, it was deduced from the study that the essence of accountability in schools is to guide through an effective monitoring system of particularly the annual teaching plan and learner performance as opposed to implementing harsh punishment upon committing an offense.

Theme 2: The pattern of accountability in schools

The SGB chairpersons were asked to describe or demonstrate how the concept accountability is practiced in their various school environment. Based on the data obtained, it appears accountability in schools be it private or public is in the form of hierarchies. Participant CP2 says that "there is a financial committee in the school that consists of the financial secretary, the deputy principal, and the treasurer of the SGB". An evaluation of participants' views from the empirical

study suggested that though SGB chairpersons have other responsibilities, their main interest is in finance. As explain by participant CP1, "at the beginning of the financial year, the SGB committee looks at the needs of the school and place them in order of preference". This is followed by the allocation of funds to the various sectors according to the need. At this level, the financial secretary is responsible for all financial records that must be directed to the SGB says participant CP1. This is in confirmation of Mestry and Bisschoff (2009) earlier confirmation that the SGBs have as part of their responsibility to share the limited finances obtained as indicated in section 34 of the SASA between human and physical resources at schools with the aim of achieving effective educational goals. Therefore, in monitoring or keeping SGB chairpersons accountable for a successful financial management, participant CP1 says: *They (SGBs) are expected to report as per the expenditure plan in their monthly and quarterly report which determines whether or not there is an over or under expenditure.*

Observation in some instances pointed to the degree of reporting that is expected in the domain of finance for proper accountability. Thus, a further demonstration that where there is responsibility, there must be accountability. Acording to Skedsmo and Huber (2019), in applying these core principles of accountability to an educational system, it must be remembered that schools are by nature highly structured institutions with clear positions of hierarchy within the members. One of the participants (CP2) during interview explained that: *It is critical for the SGB to adopt a school development plan that would determine what is expected of every stakeholder towards the development of the school. Therefore, whoever is assigned for the collection of fees for example, is highly accountable to the SGB board that oversees the finance.*

While affirming the above view, CP1 said "*if at the end of the year these financial duties are not well executed those placed in charge must be held to account*". This is in line with Skedsmo and Huber (2019) view that concerns relating to performance, fairness, and efficiency brought about key reform elements such as standardised testing, monitoring, and accountability in the education system must be fully implemented. This explains why Heystek (2011) says that policy implementation for quality education in the case of quintile 1-3 schools is usually in the hance of the principals in an attempt to ensure maximum implementation, rather than leaving decision making in the hands of parents who are illiterate. However, to us, attaining these reforms must not be the point of departure alone. Rather, the point of departure should be on the need to make all SGB persons either educated or not to feel involved by means of participation in the policy making processes as well as creating awareness in respect to their responsibilities which entails training. In relation to inclusiveness of stakeholders Participant CP1 therefore reveals that "*as an SGB person, you have to account for all these tasks on or before due date as stipulated by policy. But not without the learners playing their part in the process by doing their assignments and studying for exams*". An indication that accountability has no limit but rather comprises of the entire team that must be done in the form of hierarchy or managerial leadership fashion ranging from the top involving the department to the bottom involving the school management team.

Theme 3: The magnitude of accountability in schools

In a school as an organisation, specific tasks are often given to specific stakeholders either as a group or as individuals. The SGB chairpersons were asked to identify who they considered as key role players and the degree of accountability at the various schools they are involved. According to the interview with participant CP1: *Every stakeholder in the school including*

learners, are key players in the day to day functioning of the school with different areas of responsibilities.

In fact, it emerged that every stakeholder has a role to play as far as learning and teaching is concerned and must be accountable to someone. However, failure to perform is tantamount to disciplinary actions, which unfortunately is often considered as the last option especially if it is not for the interest of the learners. Findings from a one-on-one interview with participant CP3 reveals that stakeholders are usually given the opportunity to make amends of their mistake rather than an immediate punishment. While acknowledging this view, Business Day (2012) explain that attempts to address such problems have rather been characterised by the lack of accountability and blame shifting, while the system remains badly in need of professional management and support from all interested stakeholders.

Furthermore, the SGB chairpersons equally acknowledged that they are aware of their responsibilities as well as the repercussions for failing to comply which is the same for all the stakeholders. Regarding the issue of learner security in and out of the school premises, it is well defined by RSA (1996b) and understood by the stakeholders that it is the responsibility of the educators based on the stipulations of loco parentis to look after learners that have been entrusted under their care by parents. Findings reveal that there have been cases or situations in which principals and educators are taken to court by parents for failing to provide adequate security over a particular learner while in order instances it was resolved amicably. Regarding this, participant CP2 says: *We had a case some three years ago where a court case was opened against one of our educators. Fortunately, because of my influence in the community as the SGB chairperson, I invited the parent over in the presents of the educator and the matter was resolved.*

An important role demonstrated by the SGB chairperson in this instance is the right to be heard which was offered to both parties. In other instances, as deduced from the data it could become more problematic if the learner suffers physical injuries that can cause disability or even death. To these SGB chairpersons therefore, every effort is made to ensure that all problems are resolve at the level of the School Governing Board before they escalate. In line with the above analysis, the authors believe that Smith and Holloway (2020) were to a greater extent correct in their disclosure that the process of evaluating school performance based on learner performance measures narrowly defines educator quality. Thus, educators play a multifunctional role which range from ensuring that the school climate is good enough for learning as well as classroom management. Consequently, besides the role of the collegial theory in ensuring learner's safety through participation, the above explanation further display the role of an effective and efficient leadership role.

Theme 4: Other leadership responsibilities (Educator recruitment)

Following the decentration of the South African Education System, in which the powers over decision making was entrusted on the school (Hooge et al., 2012; Mestry & Ndhlovu, 2014), it follows that the SGB has as part of their responsibilities to recruit educators. Like in the other areas of responsibility, it was unanimously revealed that the SGB is responsible to see that the process of recruitment is done accordingly, whether assigned by the Department of Education or for their own personal need as an independent organisation. Affirming this view participant CP1 says that: *Because of my level of exposure, connection, and level of accountability to parents as a former principal, I am sometimes entrusted with the authority to hire an educator payable by the SGB in collaboration with the principal.*

Under such circumstances one would assume that the SGB in collaboration with the principal is at the centre of educator's employment and of making sure that every classroom has an educator through self-generated funds. However, it remains the responsibility of the Department of Education to advertise the position(s) either through government gazette, newspapers and various online platforms, while as part of the SMT, the SGB does the screening and shortlisting which are then referred back to the Department for appointment (CP2). This is like Seakamela (2011) earlier explanation that the governments in many countries respond to accountability pressures by taking the lead in setting goals, establishing priorities, and building frameworks for accountability while at the same time shifting authority and responsibility for key functions to school level. This is important for a managerial leadership system which is characterise by hierarchy as it would clearly define the different levels of accountability for every stakeholder.

Another notable remark is on the criteria involved in the recruitment process of educators. Participant CP3 on a very serious note emphasised saying "as far as accountability is concern, people can sometimes abuse their powers or bypass authorities to attain the said objectives or goals of the school". For example, participant CP1 says: *At some point of the recruitment process at our school, only male educators are hired with no major challenge from the Department or community because it is a constructive discrimination.*

This by implication means that if the objective of learning and teaching is to achieve a successful outcome, then the department must worry not about how it is attained. Unfortunately, the authors hold that though some form of collaboration or partnership is displayed through mutual agreement, this is an act of unfairness through gender bias which must be condemn because the school as an organisation is guided by principles like fairness as indicated in the South African School Act 84 of 1996 (RSA,1996b). This however affirms the postulation by Heystek (2011) that the issue of decentralisation or participative leadership in schools would work better for schools with more educated members of staff. However, the department has an obligation to ensure that even in township areas such as those in this case study with high illiteracy rate, the parents get the help they deserve.

As deduced from the data the SGB is responsible for the payment of educators hired by them through fun raising which is often very challenging for quantile 1-3 schools. This was confirmed from two separate interviews where on the one hand participant CP3 revealed that "the budget allocated by the DoE does not allow for extra employees that are brought on board for temporal teaching". While participant CP1 from a quintile 5 school says "*We are self-sufficient in our school. Beside the allocation received from the government, we also raise funds through the SGB in various forms because we have a lot of educators paid by us*". Therefore, in both instances, the SGB would be compelled to raise funds in different forms as stated in Section 34 of the SASA 84 of 1996 (Mestry & Ndhlovu, 2014). In trying to demonstrate the severe nature of the problem particularly for quintile 1-3 schools, CP3 says: *Hired educators usually go unpaid for some time while the SGB negotiate with the national treasury for their payments to be made.*

Unfortunately, this usually does not end well as employees through their different unions embark on strikes actions even before negotiations are made for their payments which often result in very tense situations among stakeholders. Incorporating this idea with the collegial theory would mean bringing other community members including part time educators on board by means of participation in the decision making and implementation process, thereby easing the pressure on the SGB chairpersons.

Conclusion and Recommendations

This study on the accountability of SGB chairpersons was conducted in selected township secondary schools in the North West province of South Africa. For almost three decades into democracy, the governance of South African schools has undoubtedly been characterised by decentralisation, with maximum authority delegated to the parents through the SGB. The degree of influence or relationship to which parents have on the educational outcomes of schools though according to Heystek (2011) is almost invisible, has proven to vary from one school type (quintile system) as well as environment to the other. Thus, warrants a high level of accountability to higher authorities. This is because no single sector or unit of a school as an organisation can work in isolation. It logically follows that every stakeholder including the learners and non-teaching staffs should be held accountable for their deeds and misdeeds. In a school as an organisation, the principal is often considered to be the accounting officer base on their leadership role. However, the process of accountability would be more productive in a school environment where there is a high level of participation by the governing bodies (parent component inclusive) who have been granted full autonomy as indicated in the SASA 84 of 1996 to hold other members of the SMT to account. Unfortunately, most of the township schools in the area under study falls between quintile 2 and 3 where the parents are mostly illiterate and unavailable to take responsibilities. Hence, resulting to instances where the parents either out of trust, or lack of the zeal to take responsibility, delegate their authority to the school principal or SGB chairperson over pertinent decision making.

Moreover, in analysing the data from both literature and the empirical findings, it could be deduced that accountability would mean taking responsibility over resources that have been given to the school authorities who in return would give an account to a higher authority about how these resources were used. Thus, the assumption that responsibilities must be given to an individual before they could be held to account. Most often than not, educators are held accountable in respect to the implementation of the curriculum as well as learner performance thereof. However, traces of accountability on the side of other officials like the SGB chairpersons can equally be found, considering that it is their responsibility for instance to provide funds for privately hired educators. Subsequently, other stakeholders like the department through monitoring must ensure that all due processes of educator employment are followed in order to ensure fairness. It is then in their best interest to ensure that for any drastic measure like suspension and dismissal to be taken against educators who failed to perform their responsibilities, the interest of the learners must first be taken into consideration.

As a recommendations, it goes without saying that even in the presence of a high level of poor performance that warrant some degree of accountability, reflective rather than retributive actions could be taken in the form of motivation of stakeholders. Also, there is clearly a huge need to educate employees on the purpose of accountability, thereby avoiding a possible miscontextualisation and resistance. Whether responsibility or answerability which are all synonyms of accountability, the purpose remains the same for as long as it is for the best interest of teaching and learning. Lastly, because the realisation of accountability in education depends heavily on all stakeholders, especially the SGBs and SMTs, it is also recommended that they relentlessly develop and up skill each other where necessary through a more participative effort characterised by tolerance.

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INTERVENTION OF AUTOGENOUS TRAINING TECHNIQUES FOR PSYCHOLOGICAL PREPAREDNESS OF SPORTS SCHOOL STUDENTS

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Abstract. *Athletes' success in sports is linked not only to good physical, technical and tactical preparedness, but also to psychological fitness. In sports psychology there are two basic types of psychological preparation, namely general psychological preparation and special psychological preparation. Just as comprehensive physical preparation is the basis for an athlete's special, technical, tactical fitness, so comprehensive psychological preparation is the basis for an athlete's mental toughness both during the training and competing. Regardless of the stressors, the athletes with higher levels of mental toughness can overcome more easily the negative effects of stress. In order to gain mental toughness skills, it is necessary to develop basic psychological skills at the same time as starting sports activities, and this process should continue in parallel with the entire training process. The aim of the study: to explore the intervention benefits of autogenous training (AT) techniques for improving the psychological skills of young women volleyball players. Research method: a survey was employed for obtaining the athletes' feedback. Results: Statistically significant changes were found in the self-assessment of athletes' well-being after autogenous training. The self-assessment results show that athletes reach different AT acquisition levels as the result of a two-month AT intervention: 7.7% of athletes do not have difficulty with AT techniques, for 30.8% AT come easy, but not always, 53.8% of athletes sometimes manage to feel warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, but for 7.7% of athletes the acquisition results of AT techniques are poor.*
Keywords: *autogenous training techniques, psychological preparation, athletes*

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Introduction

The athletes' success in sports is linked not only to good physical, technical and tactical preparedness, but also to psychological fitness. The aim of the athlete's psychological preparation is to help the athletes achieve optimal development, experience, and performance, while the coaches must not only be the process managers of the respective sport, but also provide the athletes with psychological support (Vealey, 2007).

Exploring the recommendations and methodical materials elaborated by Volleyball Federation (FIVB, n.d.), in the section on the required qualities of volleyball players, the following indicators can be identified: mental states required for the players to learn volleyball techniques and tactics; mental states and qualities related to winning or losing competitions. The athlete qualities, such as self-confidence, positive thinking, willpower or determination, the ability to think and make decisions independently are also important.

There are two types of psychological preparation: general and special. General psychological preparation is characterized by focusing on formation and development of universal (comprehensive, versatile, multipurpose) psychological skills, which, being important in sports, are valued in many other areas of human activity and form the basis for psychological preparedness. In turn, special psychological preparation means focusing on the formation and development of athletes' mental abilities and personality traits, promoting success in specific conditions of sports activity (Ahatov & Rabotin, 2008).

The aim of the general psychological preparation is to improve the athlete's psychological skills, including the acquisition of stress management strategies, and it is a multifaceted process (Weinberg & Gould, 2019). Just as general physical preparedness is the basis for an athlete's specific, technical and tactical fitness, so the general psychological preparedness is the basis for athlete's mental toughness both during the training process and during competing. Regardless of the stress factors, the athletes with greater mental resilience can overcome more easily the negative effects of stress. In order to achieve such psychological resilience, for an athlete it is necessary to develop basic psychological skills at the same time as starting sports activities, and this process should continue in parallel with the entire training process (Kaiseler et al., 2009).

The process of acquiring psychological skills is linked to systematic and consistent practice of psychological skills in order to improve the athlete's performance, increase well-being or achieve greater satisfaction from participation in sports and physical activity (Weinberg & Gould, 2019). The experience of sports psychology specialists shows that athletes sometimes have to wait a long time before the positive effects of the learned stress management techniques appear, and sometimes it can even lead to a decrease in the athlete's initial performance. Better results appear when psychological preparation tools and strategies are integrated and have become an athlete's natural way of thinking, feeling and behaving (Uneståhl, n.d; Bunszen & Uneståhl, 1997). Traditionally, the most commonly used methods for improving psychological skills in sports are guided imagination, relaxation, goal setting, inner self-talk, biofeedback learning, performance profiling and behavioural management techniques, of which four methods are used most frequently: guided imagination, goal setting, thought management, and relaxation/arousal regulation (Vealey, 2007).

A study by Kaiseler et al. (2009) shows that athletes with higher mental toughness more easily overcome the negative effects of stress. In order to achieve such psychological toughness it is necessary to develop basic psychological skills throughout the entire training process. Molina et al. (2018), studying the emotional reactions of young athletes during competitions, conclude that it is necessary to teach athletes from an early age to reinterpret cognitively situations, because uncontrolled emotional reactions divert attention and concentration during competitions. Therefore, the athletes must learn to manage regularly the intensity of emotional reactions from the first years of competing, as well as to understand their emotional states, because, as the research data indicates, the young athletes often suppress emotions during the competition. By blocking emotional reactions, the opposite results are observed, increasing tension and anxiety.

That is why it is so important to start the psychological preparation of young athletes in a timely manner, promoting the athlete's psychological resilience, as it is a dynamic process characterized by a positive adaptation pace in the context of significant difficulties (Fletcher & Sarkar, 2012).

For the psychological preparation of athletes, one of the well-tested training methods is autogenous training (AT). AT was first mentioned in 1932 by German psychiatrist Johannes Heinrich Schultz. It consists of structured self-inspiration techniques and positive inner self-talk formulas. The term "autogenous" is derived from the Greek words "autos" and "genos" and can be translated as "self-exercising" or "self-induction therapy". AT is a conceptually designed system that has a physiological basis, and self-hypnotic (self-suggestive) recommendations are woven in the form of an intervention that connects the "mind" and the "body" (Linden, 2007).

Autogenous training is a psychophysiological technique of self-control, which aims at physical and mental relaxation and consists of automated verbal suggestions by which individuals learn how to change certain psychophysiological functions, initially with minimal

intervention of another person, but when the technique is mastered – without any intervention of another person (Gunter, 1996).

Thus, AT is a comprehensive system with a broad philosophical basis, and its assumptions and goals are shared by other methods of relaxation and meditative practice. Meditative experience and concentration are rooted not only in psychology but also in neuroscience and neurobiology. It affects not only the level of functional activity of the brain, but also affects structural changes in the grey and white matter, especially in the areas of the brain and networks related to attention and memory, interoception and sensory processing, as well as self-regulation and automatic regulation. These areas of central nervous system activity include the regulation of emotions and stress, which, in addition to the integration of the central autonomous regions, includes the limbic system, endogenous motivation and reward centres, thus reducing anxiety and 'stress sensitivity' as well as improving the ability to learn and remember (Schlamann et al., 2010; Esch, 2013). Already in 1986, Lindemanis (1986) writes that with the help of AT, the athletes can overcome the pre-start fever and tension during competitions, the tension caused by inferiority complex and expectations of approaching competition, general nervousness and develop the ability to use all their resources to improve the performance and mobilize unused resources. According to Ortigosa-Márquez, Carranque-Cháves & Mendo (2015), the AT technique positively modulates an athlete's pre-competition self-confidence and subjective vitality level, while research of Mohammadi, Ziabari & Treur (2019) indicates the effectiveness of autogenic training in regulating an individual's tension and emotions.

The main possibilities of using AT in sports can be combined in three sets of exercises: a "mobilizing set" for pre-start apathy and fatigue; a "calming set" for reducing increased pre-start anxiety, as well as anxiety after competing; and a "somnolent set" used in cases of increased negative tension and sleep disorders. These modifications focus on self-regulation of respiratory and cardiac functions, as well as neuromuscular apparatus and ideomotor training (Reshetnikov, 2018), which helps to effectively implement the psychological preparation process of athletes to improve the performance in competitions (Bidzan-Bluma, Pielak, & Budnik-Przybylska, 2017).

The aim of this study is to explore the benefits of AT interventions to improve the psychological skills of young volleyball players.

Methodology

The research was carried out according to ethical rules, and a research group – volleyball players of the School of Sports Games, 16-18 years young women (n =13), was established. The parents of the young athletes were informed about the participation in the study in accordance with the provisions of the data protection law. All athletes had not previously practiced autogenous trainings, as well as they had not previously undergone psychological training sessions. A total of eight autogenous training sessions were designed and conducted, which included seven AT exercises, and the sessions took place once a week during the two-month period.

The research method – survey was employed for obtaining athletes' feedback. The survey consists of four questions that reveal the athletes' self-assessment of the acquisition quality of AT techniques and acquired skills for the improvement of their psychological preparedness. Additional two questions describe the athlete's well-being on a scale from 1-10 before and after acquisition of AT techniques (Cronbach's Alpha $\alpha = 0.924$), but T-test is used for a comparative analysis of the results and determines the differences in the related samples. There are also two open-ended self-assessment questions for the evaluation of performance quality of AT exercises: "Which exercises were successful?" and "Which exercises caused

you difficulty?". The performance of AT techniques was assessed on a scale from 1-10, based on the following criteria: very high acquisition level (10 – "outstanding", 9 – "excellent"); high acquisition level (8 – "very good", 7 – "good"); medium acquisition level (6 – "almost good", 5 – "mediocre", 4 – "almost mediocre"); low acquisition level (3 – "weak", 2 – "very weak", 1 –"very, very weak"). The athletes completed the survey in writing immediately after the AT sessions.

For holistic and comprehensive development of the athlete's personality, the classical exercises of AT techniques were summarized according to J.H. Schultz (Linden, 2007). When working on the cognitive or educational component, it is taken into account that these young women athletes previously did not have any information about AT, and when compiling the set of AT techniques, an explanatory part – a mini-lecture was included, as well as explanatory and educational work was performed at each AT session.

The assessment of performance quality of AT techniques also includes the personality development component, which generally reflects the person's worldviews and attitudes that leads a person to action. In this case, the determining factors are the attitude and the ability to assess one's activities.

By perfecting the emotional and willpower components, the acquisition of AT techniques, like any other new exercise, requires willpower, patience and emotional return. Psychophysiological components – AT techniques include exercises, during which one can get a feeling of heaviness and warmth in the limbs, regular deep breathing, a feeling of warmth in the area of solar plexus, a feeling of coolness in the area of the forehead.

Summarizing the set of AT techniques, the recommendations of Reshetnikov (Reshetnikov, 2018) on the components of psychomuscular part of AT in sports were taken into account: the ability to relax muscles; the ability to visualize the content of AT formulas as vividly as possible with a strong power of imagination but without mental strain; the ability to maintain attention to the chosen object; the ability to influence oneself with an appropriate verbal formula. This approach is intended for actualizing such psychological skills necessary for the athletes as concentration, self-control, relaxation, visualization, positive self-talk, self-esteem and self-confidence, and self-regulation of emotional manifestations caused by stress.

The principle of gradualness was applied to acquisition of AT techniques. Therefore, when planning AT sessions, a new element was gradually added to each AT session; and in addition to the traditional two AT parts – calming and activating, an introductory part was added with the task of breathing observation (10 breathing cycles), followed by the first exercise (invoking the feeling of heaviness and warmth in the limbs and solar plexus area). In the first three sessions, the classic AT techniques were included (except for "the heart beats calmly and regularly"), a total of five exercises, and one exercise for exiting the state of relaxation. The given AT techniques develop and perfect the athletes' bodily sensations, concentration abilities, attention retention and relaxation skills, and starting with the fourth session, another exercise was added – the target formula for the improvement of positive self-talk, self-confidence and self-belief.

Research results and discussion

Prior to the execution of AT techniques, the average self-assessment scores of the athletes' well-being on a scale from 1-10 are $M = 7.3$; $SD = 0.5$, and $M = 7.8$; $SD = 0.6$ after the execution of AT techniques. The analysis of the data obtained from the athletes' well-being self-assessment before and after the intervention of AT techniques show reliable ($p<0.05$) results – the well-being of the athletes improves after the execution of AT techniques (see Figure 1).

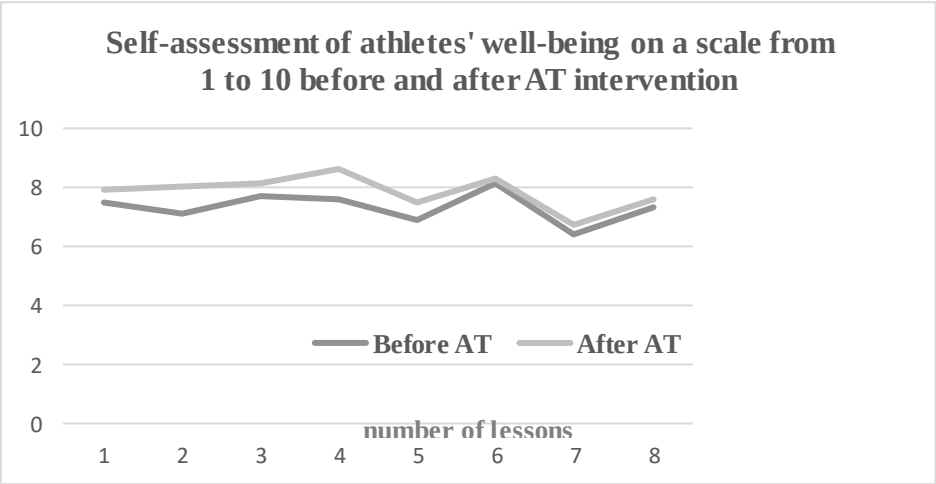

Figure1 ***Self-assessment of athletes' well-being on a scale from 1 to 10 before and after AT intervention*** **(*n*=13)** *(created by the authors)*

Analysing and summarizing the participants' reflection on the acquisition process of AT techniques, the obtained results indicate that the athletes managed to relax and feel the warmth in some part of the body. In turn, the difficulties were experienced with invocation of warm sensations in certain specific parts of the body, feeling coolness in the forehead and with concentration on repeating the target formula.

The athletes' self-reflections show that the same techniques that came easy in one session, can bring some struggles in another session. This suggests that learning AT techniques requires more systematic practice and it would be advisable to motivate the athletes to practice them independently on a daily basis in order to strengthen the skills acquired in the training sessions.

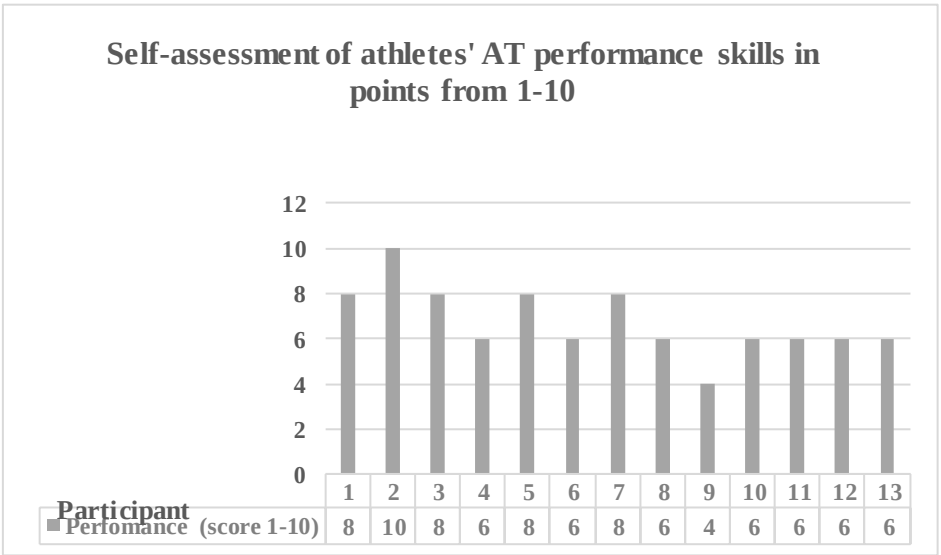

Figure 2 ***Scoring of athletes' AT skills based on athletes' self-assessment (n=13)*** *(created by the authors)*

When analysing the self-assessment of acquisition of AT techniques, it can be assumed that AT techniques do not cause difficulties for 7.7% of athletes as they assessed them with 10 points. For 30.8% of respondents the AT techniques came easy but not always as rated with 8 points. 53.8% of athletes succeed sometimes when performing the exercises and feel

warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, and assessed it with 6 points. In turn, 7.7% of athletes have a poor AT technique acquisition score, rated with 4 points (see Figure 2).

The analysis of the research data undoubtedly indicates that the implementation of psychological skills programmes makes a significant contribution to the performance of the athletes in competitions and to the development of athletes' personalities (Dehghani & Ebrahimi, 2017; Razali et al., 2017; Vesković et al., 2019). At the same time, studies also indicate that short-term intervention does not provide reliable results, however, the acquired knowledge on the benefits of psychological skills programmes and the positive experience gained in the process of acquiring various mental techniques provide athletes with additional motivation for further development of psychological skills (Kudlackova, 2011; Bryant, 2017; Mohebi et al., 2022).

Conclusions

The self-assessments of athletes' well-being indicate that the athletes' well-being improved after performing of AT techniques, and these changes are statistically reliable ($p<0.05$).

The self-assessment results show that athletes reach a different AT acquisition level as a result of the two-month long autogenous training intervention: 7.7% of athletes do not have difficulty with AT techniques, for 30.8% AT come easy, but not always, 53.8% of athletes sometimes manage to feel warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, but for 7.7% of athletes the acquisition results of AT techniques are poor.

Athletes should continue to develop concentration, relaxation and visualization skills in order to acquire persistent psychological skills and the ability to apply them in different situations.

The results of this study show positive trends in the well-being self-assessment of the respondents after repeated use of AT techniques, but due to the small number of respondents, the results cannot be generalized. Preferably, the research study should be repeated including a larger number of respondents.

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META-ANALYSIS: THE RELATIONSHIP BETWEEN SELF-REGULATED LEARNING AND MATHEMATICAL CRITICAL REASONING

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Abstract. *Self-regulated learning and critical reasoning are two important dimensions in government policies to improve the quality of education which is manifested in the form of the Pancasila student profile. These two dimensions are able to describe the character and competencies of students that must be possessed in the Industrial Revolution 4.0. This research is a meta-analytic study that aims to analyze the relationship between self-regulated learning and mathematical critical reasoning abilities. Data were collected through searching scientific articles that have been published in scientific journals and proceedings in the period 2018-2020. There were 10 research samples that matched the exclusion and inclusion criteria. The data were analyzed using the JASP V-0.11. The results of heterogeneity test with a value of Q=111.610 and p=0.001<0.05. The effect size model used was the random effect model. The results showed that the mean effect size was 0.72 in the moderate effect category and the results of the Funnel Plot and Egger's Test with a value of z=1.368 and p=0.171>0.05 indicated that there was no publication bias. In conclusion, self-regulated learning is strongly correlated with mathematical critical reasoning.*
Keywords: *Mathematical Critical Reasoning, Meta-analysis, Self-regulated Learning.*

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Introduction

One of the important educational policies in Indonesia to face the Industrial Revolution 4.0 is strengthening the profile of Pancasila students (Zamjani et al., 2020). There are six main elements characteristic of the Pancasila student profile, namely (a) faith, fear of God, and noble character, (b) global diversity, (c) independence, (d) cooperate, (e) critical reasoning, and (f) creative. The six elements must be seen as aunit that is complementary and related to each other. Education must be able to improve learning outcomes in the form of cognitive and non-cognitive competencies so that each student is able to be competitive at the global level, but still base their behavior on the principles of Pancasila.

Mathematics aims to equip students with reasoning, analytical, logical, systematic, critical, innovative and creative thinking skills, as well as problem solving skills (Fauzan, et al., 2017). Mathematical skills are partof life skills that must be possessed by students, especially in developing reasoning, communication, and solving problems faced in everyday life (Sudiarta & Widana, 2019). Therefore, mathematics must be taught starting from basic education to higher education. Understanding mathematical concepts is the main foundation for students to build logical and systematic thinking skills. The hierarchy of mastery of concepts in mathematics has been organized in such a way that it is able to train logical thinking systematically and regularly in problem solving (Yunita et al., 2020).

Self-regulated learning is an activity carried out by a student to learn more actively that comes from his own desire or intention to achieve an ability or competence to deal with matters related to himself supported by knowledge in determining time, place, rhythm, tempo, method and evaluation of learning carried out by a student. Self-regulated learning shown in the behavior that is responsible for the learning process and results. Students who have self-regulated learning must have several key elements,including awareness of themselves and the situation at hand, as well as the ability to carry out self- regulation, namely regulating their thoughts, feelings, and behavior to achieve learning goals (Rovers et al., 2019). Self-regulated

learning has three main elements, namely prior domain knowledge, self-efficacy, and the use of learning strategies. The three elements are positively correlated with students' critical thinking skills in mathematics (Sun, Xie, & Lynley, 2018). Thus, the development of students self-regulated learning should be an important concern for teachers and educational institutions.

There are nine indicators of self-regulated learning, namely: (a) having the initiative to learn, students learn on their own accord without being ordered by others; (b) identifying and determine learning needs independently; (c) setting learning targets and objectives, so as to determine the stages of the learning process to be carried out; (d) monitoring, regulating, and controling learning progress, as a form of self-evaluation of progress made it has achieved; (e) having the ability to see difficulties as challenges, students do not easily give up when facing learning difficulties, on the contrary, they are more enthusiastic to find the right solution; (f) seeking and utilizing relevant sources, is a form of independence to solve problems; (g) choosing and applying appropriate learning strategies, (h) evaluating learning processes and outcomes, and (i) having self-efficacy (Asmar & Delyana, 2020).

Reasoning is an activity or thought process to make conclusions or develop new statements based on previous statements where the truth has been proven (Fajriah, et al., 2019). Critical reasoning is the ability of students who are able to see things from various perspectives and are open to new evidence. To achieve this ability, students must be able to think systematically and scientifically, conclude from existing facts, and solve problems first (Widana, 2020). Several elements must be met to achieve this profile, including being able to obtain and process information and ideas, analyze and evaluate reasoning, reflect on thought processes, and make decisions (Hobri et al., 2020)). Parenting is one of the dominant factors that affect good critical reasoning abilities. Democratic parenting is the dominant factor that is able to build critical reasoning because it provides space for students to develop self-regulated learning (Boobphan et al., 2021).

Mathematical critical reasoning includes the ability to think critically and creatively so that it can be used to solve problems (Jablonka, 2020). Critical thinking is an individual's mental activity to make decisions in solving problems faced with various information that has been obtained through several categories (Aini et al, 2019). Critical thinking is a systematic thinking activity that allows a person to formulate and evaluate their own beliefs and opinions (Seventika et al., 2015). So, students in critical thinking use reasonable thinking to decide what to do according to their intellectual abilities. Creative thinking generally involves higher order thinking skills. Creative thinking is related to novelty that comes from one's innovation and creativity. Every individual has the ability to think creatively, therefore it is very important for teachers to develop factors that can improve creative thinking skills (Cenberci, 2018).

The characteristics of critical mathematical reasoning include: (a) interpretation is the ability to understand and express the meaning of a situation, data, judgment, rule, procedure, or various criteria; (b) analysis is the ability to clarify conclusions based on the relationship between information and concepts, with the questions in the problem; (c) evaluation is the ability to assess the credibility of a statement or other representation of someone's opinion or judge a conclusion based on the relationship between information and concepts, with the questions in a problem; (d) inference is a person's ability to identify the elements needed in making rational conclusions, by considering information relevant to a problem and its consequences based on available data; (e) explanation is a person's ability to state one's reasoning when giving reasons for justification of a proof, concept, methodology, and logical criteria based on existing information or data, where this reasoning is presented in the form of an argument (Lestari & Jailani, 2018).

Students who have critical reasoning are able to understand the case at hand, conclude what is given to the case, know how to use information to solve problems, and be able to find

relevant sources of information to support problem solving. In the context of problem solving, mathematical critical reasoning consists of several stages containing several indicators. The stages of mathematical critical reasoning are formulated as follows (Biagioli, 2020).

Table 1 **Mathematical critical reasoning stages and indicators**

No.	Stages	Indicators
1.	Basic clarification	a. Analyzing a given situation b. Formulating questions c. Choosing a problem solving strategy
2.	Bases for the decision	a. Choosing information that is relevant to the problem b. Evaluating the credibility of the information obtained c. Analyzing the suitability of new information with previously owned information
3.	Inference	a. Making deductions and evaluating deductions b. Making inductions and evaluating inductions c. Evaluating and formulating conclusions
4.	Advanced clarification	a. Defining and formulating concepts b. Identifying assumptions
5.	Supposition and integration	a. Predicting, formulating hypotheses b. Blending, combining

Many correlational studies have been conducted relating to self-regulated learning and mathematical critical reasoning. However, the magnitude of the correlation between the two variables varies with the number of samples, resulting in various conclusions. This study aims to analyze the correlation of self- regulated learning and mathematical critical reasoning sourced from published journal articles and proceedings. The results of this study can provide answers to the doubts that arise due to the various conclusions obtained, regarding the correlation between self-regulated learning and mathematical critical reasoning.

Method

This study is a meta-analysis research using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) method which is carried out systematically and analyzed quantitatively to obtains accurate conclusions. This meta-analysis research needs to be carried out because of the fact that there is no research that is free from errors in research even though researchers have tried to minimize errors in research using various statistical controls. This research was conducted from July to August 2021 in Denpasar. The steps of meta-analysis research can be grouped into 3, namely: (1) formulating research questions and collecting research results as meta-analysis material, (2) calculating effect sizes, and (3) compiling reports on analysis results (Retnawati et al., 2018).

Population were journal articles and proceedings that are similar and relevant to the title of research on the relationship between self-regulated learning and mathematical critical reasoning and have been published. Research data search using Google Scholar, SINTA, and DOAJ databases. The flow of browsing samples of articles and proceedings can be described as follows.

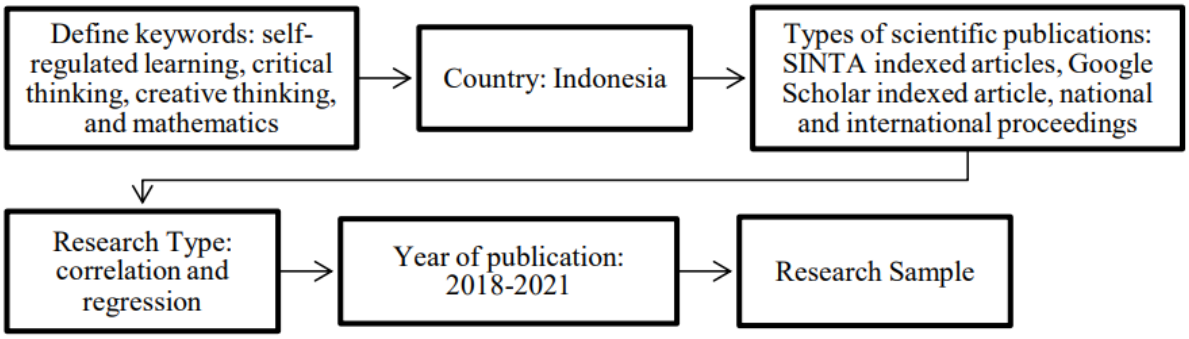

Figure 1 **Research Sample Tracing Flow**

The research data were processed and analyzed using the JASP V-0.11 software (Goss-Samspson, 2019). Furthermore, to determine the effect size merger model, heterogeneity test was carried out. If the p value > 0.05 then the effect size merger model uses a fixed effect model, while if the p value < 0.05 then the effect size merger model uses a random effect model [18].

There are 5 criteria of effect sizes that show the strength of the relationship between self-regulated learning and mathematical critical reasoning, as follows (Glass & Smith, 1981).

Table 2 **Effect Size (ES) Criteria**

No.	Criteria	Effect Size
1.	$ES \leq 0.15$	Can be ignored
2.	$0.15 < ES \leq 0.40$	Low
3.	$0.40 < ES \leq 0.75$	Moderate
4.	$0.75 < ES \leq 1.10$	High
5.	$1.10 < ES \leq 1.45$	Very high

Results and discussion

The results of the search for journal articles and proceedings are carried out in accordance with the steps and criteria that have been set. Data from the search results of journal articles and proceedings based onthe stages carried out are as follows.

Table 3 **Article search results data**

No.	Stages/Criteria	Total
1.	Define keywords: self-regulated learning, critical thinking, creative thinking, and mathematics	2.162
2.	Country: Indonesia	877
3.	Types of scientific publications: SINTA indexed articles, Google Scholar indexed article, national and international proceedings	121
4.	Research Type: correlation and regression	68
5.	Year of publication: 2018-2021	29
6.	Research Sample	10

Table 3 above shows the search result data according to the search stages and criteria that have been set. The number of samples according to the inclusion and exclusion requirements was 10 articles and proceedings, consisting of 5 articles indexed by SINTA, 2

articles indexed by Google Scholar, 1 national proceedings, and 2 international proceedings indexed by Scopus. The selected sample data are presentedin table 4 below.

Table 4 **Research Sample Data**

No.	Research Title	Author	Journal/Proceeding
1.	Hubungan Kemandirian Belajar terhadap Kemampuan Berpikir Kritis melalui Penggunaan *Software Geogebra*	1. Ali Asmar 2. Hafizah Delyana	AKSIOMA: Jurnal Program StudiPendidikan Matematika, Vol. 9, No. 2, (2020), pp. 221-230. SINTA 2
2.	The Influence of Self Regulated Learning to Mathematics Critical Thinking Ability on 3D-Shapes Geometry Learning using Geogebra	1. Destia Wahyu Hidayati 2. Lenny Kurniati	JIPM (Jurnal Ilmiah PendidikanMatematika) Vol. 7, No. 1, (2018), pp. 40-48. SINTA 3
3.	Kemandirian Belajar dan Kemampuan Penalaran Matematis pada Mata Kuliah Analisis Real	ıhamad Farhan	Prosiding Seminar Nasional danDiskusi Panel Pendidikan Matematika, Vol. 6, (2020), pp. 351-358.
4.	Hubungan antara Kemampuan Berpikir Kritis Matematis dan Kemandirian Belajar Siswa SMA Cimahi	1. A'ine Nurfalah 2. Dessy Prihatini 3. Wahyu Hidayat 4. Euis Eti Rohaeti	Journal on Education, Vol. 2, No.1, (2019), pp. 167-172. Google Scholer Indexed
5.	Pengaruh Kemandirian Belajar terhadap Kemampuan Penalaran Matematis Siswa pada Materi Perbandingan	1. Ghina Nurul Zannati 2. Aflich Yusnita Fitrianna 3. Euis Eti Rohaeti	Jurnal Pembelajaran Matematika Inovatif, Vol. 1, No. 2, (2018), pp. 107-112. SINTA 4
6.	Pengaruh Kemandirian Belajar Siswa SMP terhadap Kemampuan Penalaran Matematis	1. Lailatul Fajriyah 2. Yoga Nugraha 3. Padillah Akbar 4. Martin Bernard	Journal on Education, Vol. 1, No.2, (2019), pp. 288-296. Google Scholer Indexed
7.	Pengaruh Kemandirian Belajar Matematik Siswa terhadap Kemampuan Berpikir Kreatif Matematis Siswa SMA	1. Agil Maulana Akhdiyat 2. Wahyu Hidayat	Jurnal Pembelajaran Matematika Inovatif, Vol. 1, No. 6, (2018), pp. 1045-1054. SINTA 4
8.	The Logical Thinking Ability: Mathematical Disposition and Self-Regulated Learning	1. JS Ab 2. G. Margono 3. W. Rahayu	IOP Conf. Series: Journal of Physics: Conf. Series 1155 (2019) 012092 doi:10.1088/1742-6596/1155/1/012092 (Scopus Q3)
9.	The Relationship Between Self Regulated Learning and Mathematical Creative Thinking Ability	1. Runisah 2. F. Gunadi 3. D. Ismunandar	Journal of Physics: ConferenceSeries 1657 (2020) 012004 doi:10.1088/1742-6596/1657/1/012004 (Scopus Q3)
10.	Pengaruh Kecerdasan Emosional dan Kemandirian Belajar terhadap Kemampuan Berpikir Kreatif Siswa Kelas VIII SMP Negeri 2 Kota Jambi	1. Sarifah Yeni 2. Buyung 3. Sri Dewi	Jurnal Pendidikan Matematika Vol. 4, No. 1, (2020), pp. 49-54. SINTA 5

Furthermore, each research sample above recorded statistical data including correlation coefficient (r) and number of samples (N). The complete data is presented in table 5 below.

Table 5 **Sample Statistical Data**

Sample	Correlation coefficient (r)	Number of samples (N)
1.	0.412	40
2.	0.676	11
3.	0.515	25
4.	0.802	40
5.	0.757	30
6.	0.683	32
7.	0.935	31
8.	0.230	355
9.	0.610	56
10.	-0.080	70
	Total	690

Based on the statistical data in table 5 above, heterogeneity test was conducted to determine the effect size merger model. The results of the analysis are presented in table 6 below.

Table 6 **Heterogeneity Test Results**

	Q	**df**	**p**
Omnibus test of Model Coefficien	19.733	1	.001
Test of Residual Heterogenitas	111.610	9	.001

Note. p -values are approximate

Table 6 above shows the value of the Test of Residual Heterogeneity with a value of Q = 111.610 and p = 0.001 < 0.05. It means that the heterogeneity of the data is significant or the data was not homogeneous. Thus, the combined effect size model used was the random effect model.

Furthermore, the effect size of each article and the combined effect are shown by the Forest Plot image as follows.

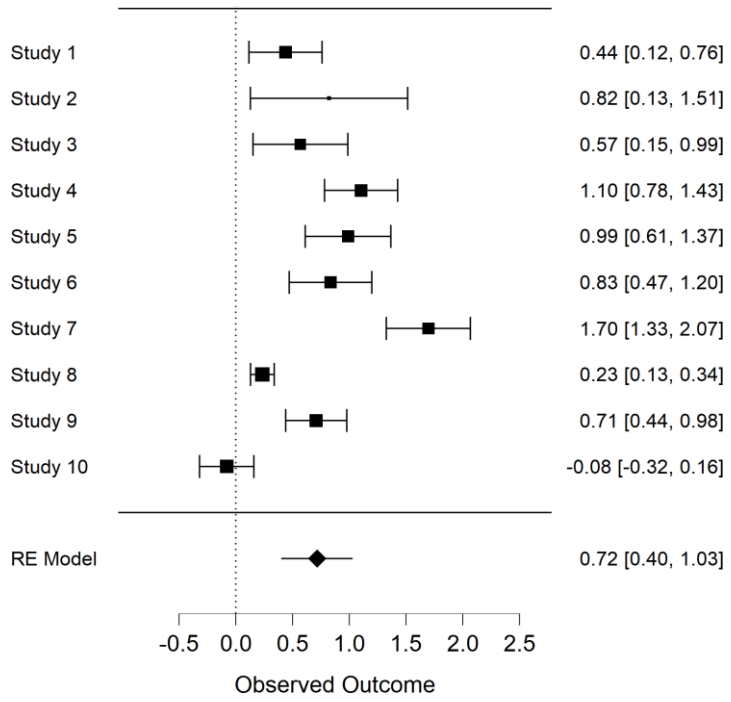

Figure 2 **Forest Plot**

Figure 2 above presents a summary of the effect size meta analysis, on the left shows there are 10 articles analyzed. The forest plot contains various elements, including the lower limit at the left end, the upper limit at the right end, and the middle part contains a square of different sizes whose width indicates the magnitude of the weighting, and the position indicates the location of the effect size of each study. At the bottom, there is a diamond whose area is the area of the total weight of each study, and its positionstates the magnitude of the effect size aggregation. The more to the right of the plot position, the greaterthe value of the effect size of the article. The effect size value seems to vary with the lowest value of - 0.08 in article no. 3 with intervals [-0.32, 0.16]. While the highest effect size value is found in article number 7 of 1.70 with an interval of [1.33, 2.07]. The total effect size value for all articles is indicated by a diamond-shaped box of 0.72 with an interval of [0.40, 1.03].

Hypothesis testing used the Wald test to determine the relationship between self-regulated learning and mathematical critical reasoning. The results of the analysis are presented in table 7 below.

Table 7 **Coefficients**

	Estimate	Standard Error	z	p
intercept	0.716	0.161	4.442	< .001

Note. Wald test.

Table 7 shows that the value of z = 4.442 and p-value = 0.001 < 0.05. Thus, it can be concluded that there is a positive and significant relationship between self-regulated learning

and critical mathematical reasoning with an effect size of 0.716 ≅ 0.72 in the moderate effect category because it is in the interval $0.40 < ES \leq 0.75$ [20].

Furthermore, the Funnel Plot and Egger's Test were carried out to test publication bias in this meta-analysis. Publication bias can be seen from the shape of the Funnel Plot, if the Funnel Plot image is symmetrical, it can be concluded that there is no publication bias. On the other hand, if the Funnel Plot image is not symmetrical, it means that there is a publication bias. To increase the precision of the publication bias analysis using the Funnel Plot test, it was tested with the Egger's Test. If the p-value > 0.05 means that the Funnel Plot image is symmetrical, otherwise if the p-value < 0.05 means that the Funnel Plot image is not symmetrical.

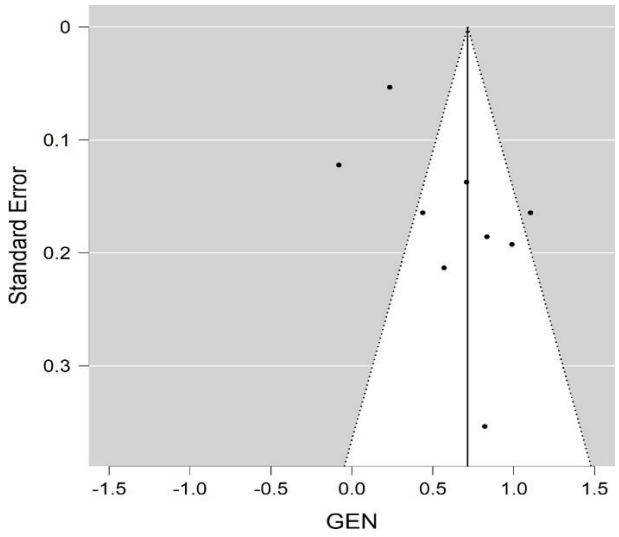

Figure 3 **Funnel Plot**

In Figure 3 above, it can be seen that the Funnel Plot image is symmetrical and the sample points for each article and proceedings are in a triangular area. To increase the precision of the Funnel Plot test results above, the Egger's Test was carried out as follows.

Table 8 **Egger's Test**

Regression test for Funnel plot asymmetry ("Egger's test")		
	z	p
sei	1.368	0.171

In table 8 of the Egger's Test test above, it can be seen that the value of p = 0.171 > 0.05 means that the Funnel Plot image is symmetrical. Thus, it can be concluded that there is no publication bias in this study.

After analyzing 10 research samples, it is seen that sample number 2 has the widest interval with a lower limit of 0.13 and an upper limit of 1.51 which indicates that the level of confidence in the research results is the lowest when compared to other samples. Sample number 2 with an effect size of 0.82 using N = 11 people and the value of r = 0.676 belongs to the category of a very small sample size, but statistically this study is significant. This can be seen from the very small effect size area but its position is to the right of the vertical line. In this study, it was stated that self-regulated learning contributed 45.7% to critical mathematical reasoning, while 45.3% of mathematical critical reasoning is influenced by other variables (Hidayati & Kurniati, 2018).

However, sample number 8 has the shortest range of intervals with a lower limit of 0.13 and an upperlimit of 0.34 indicating the highest confidence in the research results compared to other articles. The effect size value of 0.23 using N = 355 people with a value of r = 0.23 indicates that the effect size is the most precise compared to other samples. Although the effect size value is small, its position is to the right of the vertical line, meaning that statistically the results of the study in this sample are significant. In this study, it is stated that mathematical critical reasoning is not only influenced by self-regulated learning but is also influenced by other variables such as mathematical disposition, which is a positive attitude that views mathematics learning as important and meaningful. Likewise, intellectual intelligence is related to a number of abilities such as the ability to reason, solve problems, and develop ideas. Likewise, self-regulated learning is one of the important variables in learning as a form of responsibility to regulate and strive to achieve better learning outcomes (Ab, Margono, & Rahayu, 2019).

Sample number 7 has the largest effect size value of 1.70 with a lower limit interval of 1.33, an upperlimit of 2.07 with N = 31 people and a value of r = 0.935 and its position is far to the right of the vertical line. This shows that the relationship between self-regulated learning and mathematical critical reasoning is positively and significantly correlated. It was also explained that the self-regulated learning variable contributed 87.5% to critical mathematical reasoning, while 12.5% was influenced by other factors. In this study, mathematical critical reasoning is shown by the different ways students solve problems. Although the solution method is different, the end result remains the same. Creative thinking like this is strongly influenced by students' self-regulated learning (Akhdiyat & Hidayat, 2018).

Sample number 10 has the smallest effect size value of -0.08, has a lower limit of -0.32 interval andan upper limit of 0.16 with N = 70 people, the value of r = -0.08 and its position is slightly to the left ofthe vertical line. This means that the effect size in this study is very weak in the negligible category [18]. The relationship between self-regulated learning variables and mathematical critical reasoning is a negative correlation. This means that the higher the self-regulated learning, the lower the mathematical critical reasoning variable and vice versa. Only 2.8% of mathematical critical reasoning variables were influenced by self-regulated learning variables, while 97.2% were influenced by other variables not examined in this study. The sample used in this study was class VIII SMPN 2 Jambi City (Yeni, Buyung, & Dewi, 2018).

After conducting a study of 10 articles, it is seen that the number of samples used in each article varies greatly. Likewise, the magnitude of the correlation coefficient between the variables of self- regulated learning and critical mathematical reasoning varies widely with different directions. Of course, the results of these studies are very confusing for readers to make a conclusion on the relationship between self-regulated learning variables and mathematical critical reasoning. The important role of meta-analysis studies is to provide accurate answers to several studies that have been carried out by previous researchers. The meta-analysis study used a much larger sample than each of the studies conducted by previous researchers. In this meta-analysis study, the total number of samples used was 690 people. Thus the precision of effect size is much better compared to each study. The total effect sizeof the 10 samples analyzed is 0.72, which is in the interval with a lower limit of 0.40 and an upper limit of 1.03 and the direction of positive correlation.

In meta-analysis studies, publication bias can occur due to several factors, including: (1) there are articles that escape the search, (2) there is a tendency for researchers not to publish their research results because the results are not in accordance with the expected hypothesis, theory not supported by research data, (3) journal editorial teams refuse to publish research results that accept the null hypothesis, they tend to want to publish research results that accept alternative hypotheses, and (4) language bias that results in misperceptions or terms that different between researchers. Publication bias may result in inaccurate meta-analysis

results. Therefore, to ensure the precision of the meta-analysis results in order to have high accuracy, it must first be proven that the meta-analysis studies are free from publication bias.

The results of the meta-analysis study show that there is no publication bias as evidenced by a symmetrical funnel plot, and supported by the results of the Egger's Test with a value of $z = 1.368$ and a value of $p = 0.171 > 0.05$ meaning that the funnel plot is proven to be symmetrical. Thus, the results of this meta-analysis study are proven to be free from publication bias, so that the findings in this study are unbiased and can provide accurate answers to doubts about the results of previous studies whose results are very diverse both in terms of effect size, length of funnel plot intervals, number of sample, the magnitude of the coefficient and the direction of the correlation.

The relationship between self-regulated learning variables and mathematical critical reasoning has been shown to be positively and significantly correlated. Mathematical critical reasoning is related to higher order thinking skills that involve the ability to analyze, evaluate, and create (Widana, et al., 2019). These abilities can develop optimally if a student has good self-regulated learning (Farhan, 2020). Self-regulated learning is characterized by a strong desire to learn from within a person so that individuals are able to carry out learning management properly according to their initial readiness, motivation, and learning style (Nurfalah, et al., 2019). Mathematical critical reasoning develops along with the development of self-regulated learning, meaning that the better a student's mathematical critical reasoning indicates that the student's self- regulated learning is also higher (Zannati, et al., 2018). Thus, self-regulated learning should be an important concern for teachers and education managers. The relationship between the two variables is in the moderate category, so to equip students with good mathematical critical reasoning, self-regulated learning must be conditioned by teachers in learning management (Runisah, et al., 2020).

Conclusion

Research on the correlation between self-regulated learning variables and mathematical critical reasoning has been done before. Searching was done through Google Scholar, SINTA, and DOAJ obtained 10 samples that met the exclusion and inclusion requirements. Based on the 10 articles used as research samples, each study reports the magnitude of the correlation coefficient and the direction of the relationship varies. Differences in research results in each study are caused by differences in the number of samples used. This difference has an impact on the emergence of doubts about the results of research that has been carried out. These doubts can be answered through meta-analysis research.

The results of the meta-analysis showed that there was a positive and significant relationship between the variables of self-regulated learning and mathematical critical reasoning. This means that if the self-regulated learning variable increases, the mathematical critical reasoning variable also increases. Conversely, if the self-regulated learning variable decreases, the mathematical critical reasoning variable also decreases. This study also proved to be free from publication bias which ensures that the results of this study are unbiased. The number of samples used in this study is much larger than the number of samples for each study. The large number of samples can increase the precision and accuracy of research results. The recommendation that can be conveyed from this research is that students' critical mathematical reasoning can be optimized through increasing students' self-regulated learning in the learning process. The selection of learning models and the use of information technology in learning are alternatives to encourage the improvement of students' self-regulated learning.

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