Teaching Students' Understanding of Innovative Pedagogy

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Abstract

The education system, is responsible for the training of each new generation, and consequently adapts itself over the years to changes in the surrounding society. Technological changes, the information revolution and changes in work habits necessitate fundamental change in teaching methods, so that it can appropriately prepare future generations for modern reality. The Teaching and Education College in northern Israel offers programs to train "future teachers", highlighting dynamic environments, the integration of technology in teaching and innovative pedagogy. A qualitative study used an open-ended questionnaire to investigate students' perceptions of the concepts "innovative pedagogy" and "integration of technology in teaching" during their first practicum year in the education system. Findings showed that the young students find it difficult to conceptualize these concepts and describe them in a superficial and concrete manner. Mediation is needed, to connect college learning of these concepts with the students' practical work in the field.

Keywords: Teacher- training, 21st century, education- technology, innovative-pedagogy, novice-teachers

Introduction:

One of the tasks of the education system is to prepare its pupils for adult life and successful integration within the employment market. The demands of this market alter with developments in industry, technology and science. In 1970, essential skills for most employees included reading, writing and arithmetic, yet at the end of the 20th century, employees were required to demonstrate ability for team work, problem-solving and interpersonal skills. Future employees will need to assimilate to many changes, to learn rapidly and to frequently change their place of work. They will deal with non-routine interactive tasks (DeFruyt, Willie & John, 2015) and 65% of workplaces in

which today's education system graduates will be employed have yet to be identified. Despite the above-said, if we look back at the classroom of the previous century, we find that it remains remarkably similar to that which we see in today's education system. In certain cases, even when the classroom is equipped with state-of-the-art technology, teachers still teach in traditional knowledge-centered ways focusing on the teacher as the source of knowledge and passive learning by the students (Davidenkov, 2016). To adapt itself to present reality, the education system has the responsibility to alter its teaching system, so that it will be more relevant for the learner and more appropriately prepare the learner for their expected professional future. Over the years different examples of innovative pedagogy have emerged, moving the emphasis from the teacher as the sole source of knowledge to the teacher as the guide and mentor in a process of knowledge creation.

Innovative teaching takes place in different spaces within and outside the classroom; it involves definition of a problem and the search for information to resolve the problem, collecting data and analyses, team work, interpersonal skills, critical thinking, creative problem-solving and effective communication. This new pedagogy aims to equip learners with 21st century skills to enable them to cope with the current lack of certainty, to be able to assimilate and be flexible, creative and innovative (Amar & David, 2016). Many of the teaching methods that are considered "new pedagogy" are not really new, and were known in different forms in the past. The combination of teaching methods, relying on a skilled teacher with advanced technology is what produces innovative teaching methods and helps to improve them (Davidenkov, 2016).

Technology can be used in pedagogy to search for and collect information, for online communication, and for the organization and presentation of information and this has become an inseparable part of the new pedagogy. Technology can be used advantageously in lessons: in the information revolution era, each learner has the opportunity to glean information in the style and at the pace suitable for their needs. The teacher plans the learning activities; then serves as the mentor and guide for the processes of individual and group acquisition of information and enables collaboration and learning at any time and in any place (Amar & David, 2016). The learner constructs knowledge on the basis of their former knowledge and does not merely "sup from the spoon" of the teacher. The learner takes responsibility for their own learning and progresses according to their own pace and abilities (Warnich & Gordon, 2015). It was found that the use of technology in education improves students' achievements and enhances teaching and learning processes (Pedro, 2009).

Although the importance of integrating technology in education is recognized, there is a gap between teachers' willingness to apply technology

and what happens in the field. It was found that there is relatively little use of technology in schools in comparison to the students' use of technology outside the school, and even when technology is used in the lesson, this is mostly superficial, partial and restricted use. Usually technology is employed for expansion of subjects or entertainment (Warnich & Gordon, 2015). It was found that even if teachers are supplied with relevant technology in the classroom, they are still often hesitant to use it. Teachers explain that their hesitation stems from the fact that they lack time to learn how to use the tools, fear change and have a sense that they are able to implement the necessary change.

Badia and colleagues (2015) found that the best possible predictors of a positive perception of the influence of technology on teaching were the teacher's characteristics including the teacher's level of digital literacy, experience in the integration of technology in teaching and frequency of use of that technology. It was found that for the technology integration process to be meaningful, close guidance was needed to help the teacher shape a pedagogic approach using technology as a tool for active learning (Brown, 2016).

The College of Education trains all its student-teachers to teach their pupils 21st century skills. The student-teachers study the "Future Educators" course, including familiarization with technological tools and advanced thinking skills and development of suitable teaching activities. They learn in up-to-date learning spaces that permit autonomous, group or class learning, in a variety of learning styles, encouraging dynamic, purposeful and collaborative work (Simon, Neifeld & Levine, 2014). The core of the college's learning program relies on experience-based learning (Amar & David, 2016), assuming that active learning through varied practical experiences, accompanied by a trainer teacher, will prepare the student-teacher in an optimal manner for their professional work (Whitford & Barnett, 2016).

The "Academy in the Classroom" program that was piloted in the school year 2015/2016 by the Israeli Ministry of Education (2014), aims to create meaningful and alternative training for student-teachers. The program is based on the concept of Professional Development Schools (PDS), a collaboration between academic colleges and schools to broaden and improve the quality of student-teachers' practical experience (Maskit & Mevurach, 2013). This program has improved the model of teachers' practical training, because it is a comprehensive, funded policy. Students participating in the project, enjoy intensive practice in schools three days a week, with the close guidance of a trainer-teacher, similar to the model of co-teaching (Ministry of Education, 2014). This model permits collaborative egalitarian work in which the teaching is planned together by the teacher-

trainer and student-teacher, who influence each other mutually in the transmission and critique of the work (Gallo-Fox & Scantlebury, 2016).

The practicum is concentrated in three days a week, enabling a strong affinity to be drawn between the theory studied in the college and the practical work, and also affording experience in novel teaching processes alongside an experienced teacher (Ministry of Education, 2014). The students who enjoy this program have more practical experience than other teacher-students, whose practicum is more like an apprenticeship without any possibility of much practical exercise in teaching or assimilation within the school (Lahavi, 2010). This significant practicum year, is more similar to the experience of novice teachers and the student-teachers essentially enjoy the induction experience of a qualified teacher's first year at work. They enjoy a broad and continuous practicum, and are able to assimilate within the school or kindergarten staff with teachers and kindergarten teachers of different ages and years of experiences. They form work relations and friendships with the staff, experiencing being independent and accountable in teaching, working opposite parents, the managerial staff etc. Nevertheless this year involves difficulties described in terms of "shock", "confusion" and "chaos" (Simon, 2005). However, the student is accompanied by a mentoring system including the support of a trainer-teacher, the mentorship of a pedagogic tutor from the college, the theoretical knowledge learnt in the courses and the connection between theory and the fieldwork (Ministry of Education, 2014).

In the school year 2016-2017, student-teachers studying in the "Academy in the Classroom" project are performing their practicum experience in all the different age groups from kindergarten, through elementary, junior and senior high schools. Some of them are studying for a Bachelor's degree in teaching, while others already have Bachelor's degrees in different areas and are studying for a teaching certificate. All those studying for a Bachelor's degree had already participated in previous years in the "Future Educators" course and experienced innovative learning in changing environments, including the integration of technology. The present study aimed to discover how student-teachers at the inception of their practicum year, interpret the terms: "innovative pedagogy" and "integration of technology in teaching".

Method:

Despite the criticism of qualitative methodology and the critique of the discipline of qualitative methodology, the research relied on qualitative methodology including conceptual analysis. This methodology was used because of its ability to supply ample, valid and reliable information. Qualitative methodology aims to understand the way in which people understand and interpret their world of content, from their own viewpoint and to expose the relevant factors that motivate them.

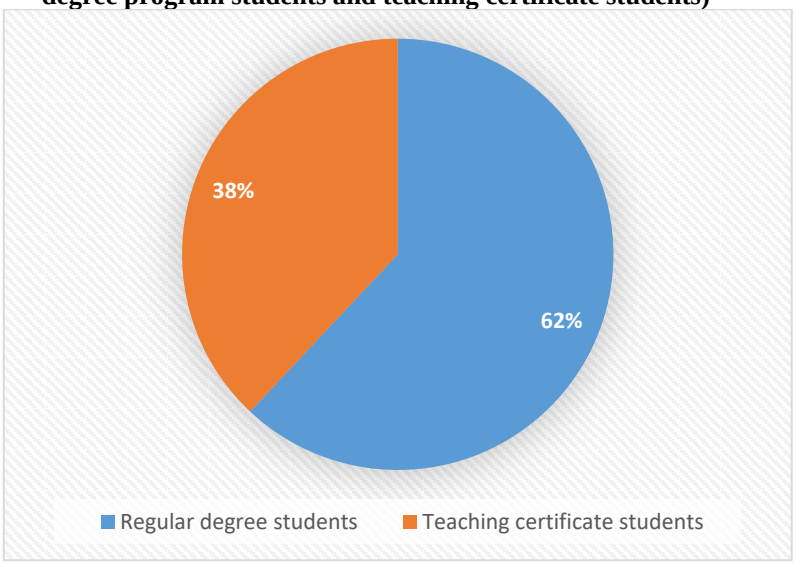
60 students participated in the research. They included early childhood stream students and teachers in elementary and secondary schools all studying in Year 3 of a four-year Bachelor's degree in education and teaching, and also students and teachers studying in a one year teaching certificate course in one of the following subjects: early childhood, Judaism, English, Sciences, Mathematics or Biology.

The research employed a questionnaire that was administered during a didactic lesson, in which the students were asked to write their personal details: sex, learning stream (early childhood, elementary and secondary schools) and to respond to an open-ended questionnaire. In the open-ended questionnaire, the students were asked to describe in their own words how they perceived the terms: "innovative pedagogy" and "integration of technology in teaching". Their responses were processed by "continuous comparison" an analytical approach in "field-grounded theory". According to this approach, the texts were encoded and sorted into categories through repetitive comparisons of the data, in order to find patterns and meanings. At the first stage the students' answers were encoded by identifying repetitive key words, at the second stage the main categories described below in the findings section were constructed.

Findings:

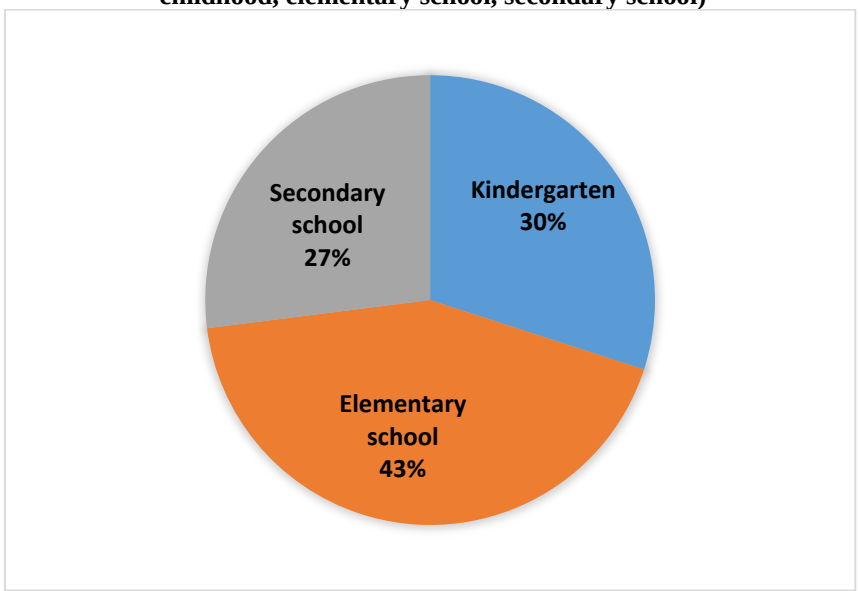
At the beginning of the school year 2016-2017, the questionnaire was sent to students in Year 3. The purpose of the questionnaire was to investigate the students' consideration of the concepts of "innovative pedagogy" and "integration of technology in teaching" as part of their practicum in schools or kindergartens. The students' responses underwent content analysis and were sorted and categorized according to predetermined key words.

Figure 1: Distribution of the students (N=60) by type of learning program (regular degree program students and teaching certificate students)



60 students responded to the questionnaire, five men and 55 women. The student population was composed of two groups, one regular degree students (n=47) and the other group of students studying only for a teaching certificate (n=13).

Figure 2: Distribution of the students (N=60) by academic studies stream (early childhood, elementary school, secondary school)



More than a third of the students taught in elementary school (43%), another 30% taught in kindergarten and an almost equal percentage (27%) taught in secondary school.

Encoding and sorting the data into categories – Stage A

Figure 3: Analysis of all students' responses regarding the concept "innovative pedagogy"

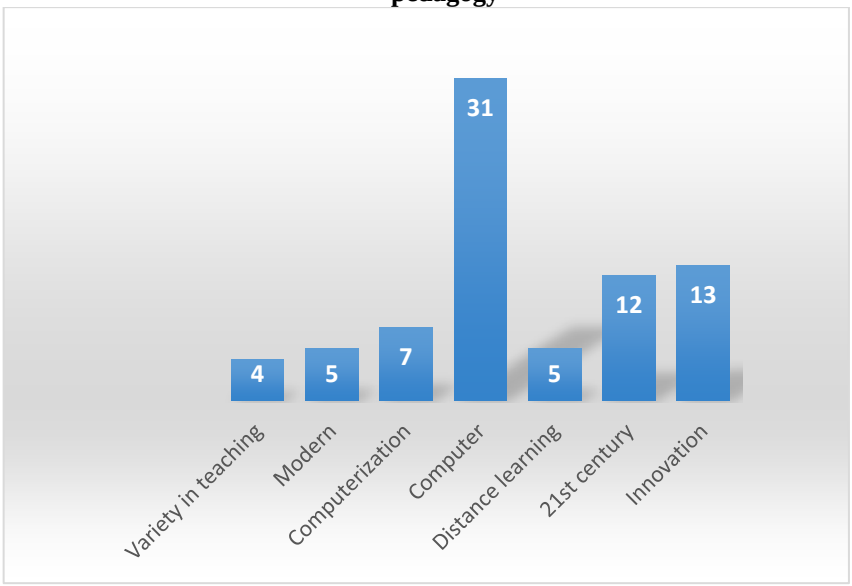
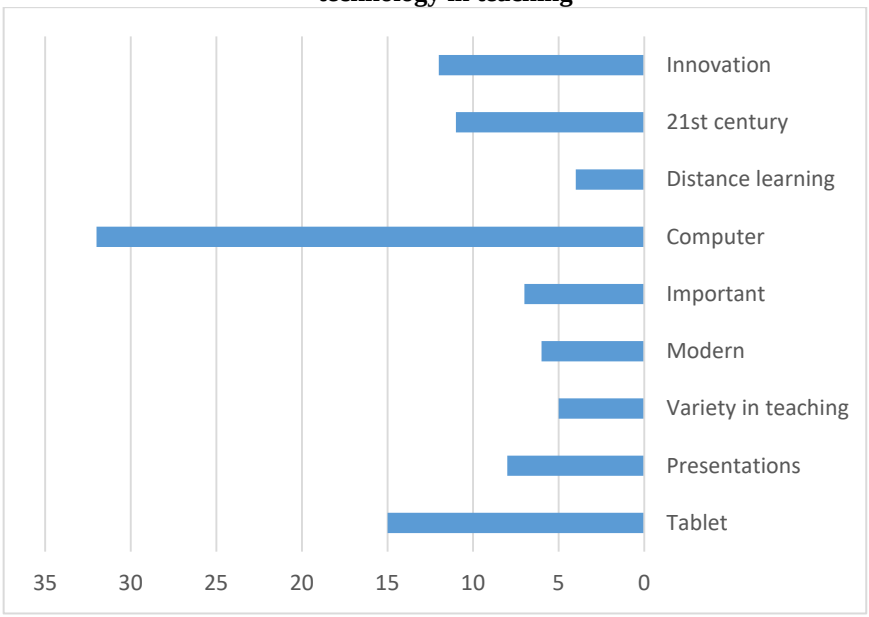


Figure 4: Analysis of all students' responses regarding the concept "integration of technology in teaching"



After receiving the results from the initial analysis of the data, it was thought pertinent to encode the results and re-sort them according to the following categories: technological tools, slogans, "important" and pedagogy in order to obtain results that would indicate any leading trend.

Stage B: Encoding the data according to categories

Figure 5: Question 1 - Analysis of all students' consideration of the concept: "innovative pedagogy"

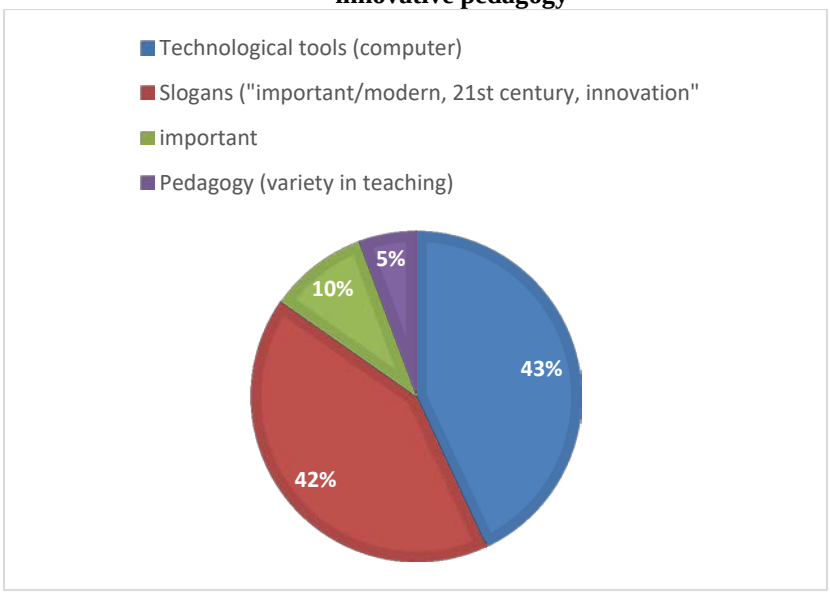
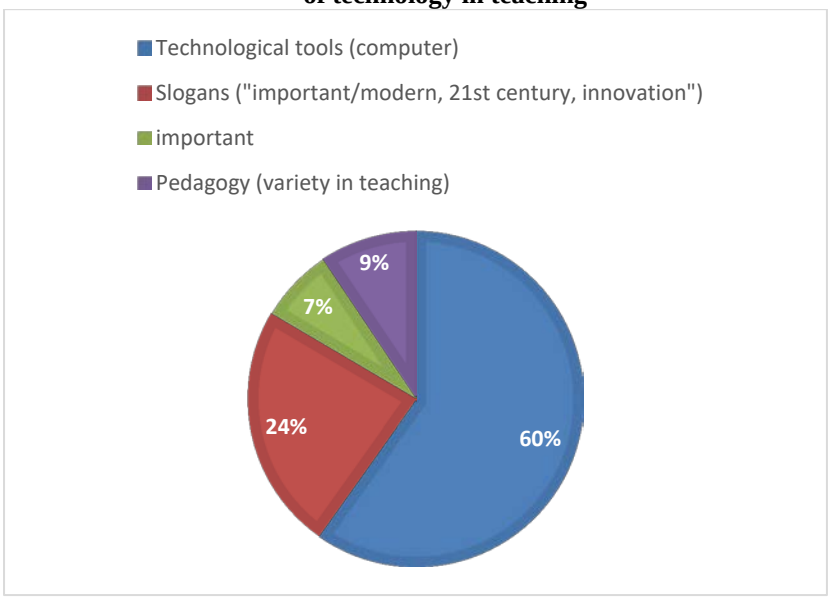


Figure 6: Question 2 – Analysis of all students' consideration of the term "integration of technology in teaching"



Discussion:

The students, who had learned about innovative pedagogy and how to integrate technology for optimal teaching in the college's innovative learning settings participated in a practicum project named "Academia in the

Classroom" for three days per week in schools and kindergartens. After their first three months of experience in schools where they were conducting their practicum, the students were asked to define the two concepts: "innovative pedagogy" and "integration of technology in education"..

Analysis of their responses indicated that the students had not yet succeeded in properly internalizing the principles of innovative pedagogy in the sense of the potential change and improvement in teaching methods, which could benefit their pupils' with more effective and advanced learning. And they perceived the concepts: "innovative pedagogy" and "integration of technology in teaching" in a narrow and superficial manner; as merely the use of a technological tool.

43% of the responses that related to the concept: "innovative pedagogy", spoke about the use of the computer in some way or another, while 60% of those who defined the concept: "integration of technology in teaching" noted technological tools that could be used in the classroom: computer, tablet or presentation. In these responses there was no consideration of the added pedagogical value for the pupils, or the adaptation of these tools to the pupils' different learning styles etc.

The students often related to what are known in research as "slogans". This means the use of terms frequently used in contemporary discourse, in communications and in society such as "modern", "21st century" and "innovation. The use of slogans does not really answer the request for a definition rather the slogans serve as synonyms, which do not necessarily have the meaning or interpretation that would explain the term to the student. Thus too, the use of the "slogan" will not produce any pedagogical consideration; rather it is simply presented as an alternative synonym. An additional category that was repeatedly mentioned in the students' responses (7%, 10%) was the term "important" with its various derivations. This repetitive term reflected the students' awareness, based on their college studies, regarding the importance of innovative pedagogy and the integration of technology in teaching.

Only a small proportion of the responses related to pedagogic aspects of the two concepts. These responses included rich consideration of a variety of teaching methods, adaptation of learning methods, learning at different thinking levels etc. As noted the analysis showed that the students' responses reflected a rather minimal understanding of the concepts "innovative pedagogy" and "integration of technology in teaching" that they had been taught at the College of Education. The attempt to explain these findings can follow several directions:

First, it is possible that the use of these terms in different contexts, and with different interpretation in articles, colleges, schools and public discourse can lead to a lack of understanding, confusion and inability to

internalize these concepts (Parsi & Darling-Hammond, 2015). This leads the students to "adhere" to concrete terms (the names of the technological tools) or slogans in order to provide an acceptable response regarding the different concepts.

Secondly, it should be remembered that the students, who learned about innovative pedagogy in the college, were taking their first steps in practical experience in the field; an intensive experience, three days per week. This is a new stressful reality, sometimes substantially different from the learning experience in the college. It seems that the concepts that they learned during their studies, are given a different interpretation in light of their experience of school reality and the teaching methods used in the schools (Warnich & Gordon, 2015). The gap between the theory and learning style of the college, and the reality in the schools, and the strong close connection with the trainer-teacher (Ministry of Education, 2014) may create a significant influence on their interpretation of present reality and theoretical vagueness.

In addition to the above-mentioned findings, Simon (2016) showed that experienced and veteran teachers actually demonstrate openness to innovation and change, while novice teachers hesitate to use technological tools because they are scared to use technology and fear technological faults and are not ready and prepared to deliver an alternative teaching program for the class. Moreover, novice teachers need to cope with the challenges involved in induction into teaching and are less amenable to changes and innovations in existing teaching methods.

Given the insights from this research, it seems that there should be a focus on pedagogic work with student-teachers and trainer-teachers in the practicum year in the "Academy in the Classroom" experience, in order to strengthen the connection between theory studied in the college and the reality of practice in the schools. Pedagogic emphases should be sharpened with regard to "innovative pedagogy" and "integration of technology in teaching" through the provision of genuine mediation in the schools for the student-teachers work.

It is therefore recommended that further research should investigate the change in students' perceptions of the concepts studied in the present research, after receiving mediation and after their field practicum, towards the end of the practicum year.

Summary and Conclusions:

The integration of technological tools and innovative pedagogy in teaching, and the implications of these concepts, were perceived and described by the student-teachers at the beginning of their practicum experience simply as the use of the computer and tablet (or what is known in

present-day slang as “metals”) and not as unique and varied teaching methods. Fear of defects and lack of understanding concerning the way in which technological tools can be integrated harmoniously into varied work in the classroom, lead the student-teachers and also novice teachers to avoid these activities and to adhere to traditional teaching styles, modeled by trainer-teachers.

Adaptation of the classrooms and the teaching for the needs of future pupils necessitates an alteration in the perception of the classroom space and teaching methods used in the classroom. This involves breaking through the physical boundaries of the classroom, learning in any place and at any time, integrating technological tools, employing collaborative work and projects. The teacher, the principal and trainer-teacher who accompanies the learning process will gain a broader picture concerning the situation of the pupils and the way in which they should be helped. There is no doubt that the future of teaching in schools will be reshaped in the next few years and the teacher-training colleges should train future teachers appropriately to work in this reality.

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