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PRESERVICE SCIENCE TEACHERS' CONCERNS FOR EDUCATING STUDENTS WITH SPECIAL NEEDS IN THEIR FUTURE CLASSROOMS

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ABSTRACT: In this study, the authors examined senior preservice science teachers' (PSTs) concerns for educating students with disabilities in science classrooms. Eight PSTs were involved in the study. The constant comparative data analysis was performed. PSTs' concerns for inclusive education were categorized into two themes: PSTs' concerns about themselves and PSTs' concerns about students with disabilities. Under each, there existed several sub issues. For the first category, data analysis yielded that PSTs were concerned about being unable to cope with extra workload by accepting students with disabilities; lacking of enough training for educating those students; insufficient pedagogical knowledge; and scarce knowledge about disabilities. PSTs' concerns about students with disabilities included three sub-issues which were: not devoting enough time for disabled students' science learning; not to be able to achieve their science learning in terms of science content and science process skills, and not to be able to help them develop positive attitudes toward science. The results were discussed and implications for teacher education were made.

Key words: Inclusive education, science education, students with special needs

INTRODUCTION

In recent years, teaching students with special needs in general education classrooms has been a common goal of education researchers. With simplest words, this approach is called as *inclusive education*. "The practice of serving students with a full range of abilities and disabilities in the general education classroom with appropriate in-class support" is defined as inclusion (Roach 1995, p. 295). The supporters of inclusive education express that all students with disabilities should be placed in regular school classrooms in which they receive support services (Nielsen 2002). An individual with a disability is defined as a person who differs from the average or normal person in "mental characteristics, sensory abilities, communication abilities, behavior and emotional development, or physical characteristics" (Kirk, Gallagher, Coleman, & Anastasiow, 2012, p. 3). However inclusive education raises many concerns in terms of general education teachers. The recent reforms in inclusion evoked the need of the change in teacher education programs with the purpose of training preservice teachers (PTs) to be able to educate students with special needs in regular schools (Peebles & Mendaglio, 2014). This change in teacher education programs was required because many countries have accepted the inclusion within the goal of their education systems (de Boer, Pijl, & Minnaert, 2011). Herein, teachers are accepted as the key persons for successful and effective inclusive education in regular schools (de Boer, Pijl, & Minnaert, 2011). Therefore, eliciting their concerns about inclusive education is important for successful implementations.

Teachers' Concerns about Inclusive Education

Teachers' concerns can have an impact on the implementation of inclusion in terms of quality of instruction which students receive in inclusive classrooms (Leyser & Tappendorf, 2001; Sharma & Desai, 2002). Especially general education teachers who think that they are not prepared for teaching in inclusive classrooms may display disappointment and, in turn, negative thoughts toward inclusion (Peltier, 1997). Other factors such as the resource and personnel availability, family involvement, and support from administrative staff also affect

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teachers' practices in inclusive classrooms (Leatherman & Niemeier, 2005; Odom & McEvoy, 1990; Rose & Smith, 1993). These factors may also increase teachers' concerns. Teachers' concerns should be investigated and opportunities should be provided for reducing their concerns.

METHODS

Research Purpose

This study examined senior preservice science teachers' (PSTs) concerns for educating students with disabilities in science classrooms.

Research Design, Participants and Data Collection

For this study we employed a case study framework. Eight PSTs agreed to participate in this study voluntarily. Their ages ranged from 21 to 23. They were in their last semester of elementary science teacher education program. They all completed subject matter courses (e.g., physics, biology, chemistry) and pedagogical courses (e.g., teaching methods, measurement and evaluation, classroom management). Additionally, they completed practicum (courses completed were School Experience and Teaching Practice) in cooperating schools during the fall and spring semesters of their last year. Semi-structured interviews were conducted by one of the authors to reveal the concerns of PSTs in terms of inclusion.

Data Analysis

In data analysis of a qualitative study, the researchers' role is to make sense of data gathered through interviews, observations and documents. Moreover, they interpret the data and the interpretation of the data is reported in terms of categories, themes, theory or models (Merriam, 1998). For this study constant comparative method was used to analyze the data. It was developed by Glaser and Strauss (1967). They stated that "the analyst starts by coding each incident in his data into many categories of analysis as much as possible, as categories emerge or as the data emerge that fit an existing category" (p. 105).

RESULTS AND FINDINGS

The focus of this research was to investigate PSTs' concerns for inclusive education. Constant comparative method of data analysis revealed that PSTs held concerns related to themselves and related to students with disabilities.

PSTs' concerns about themselves

Under this category, there emerged four sub-issues: being unable to cope with extra workload by accepting students with disabilities; lacking of enough training for educating those students; insufficient pedagogical knowledge; and scarce knowledge about disabilities.

All participating PSTs were concerned about the workload increased by accepting students with disabilities. The following are several common statements of PSTs about this issue.

It [accepting students with disabilities] will really increase the work that teachers have to complete.

Science teachers already have a lot to do. They [students with disabilities] will increase their duties and so they may not be effective.

Additionally all PSTs in this study stated that they did not get any training during teacher education for educating students with disabilities.

Teaching students with disabilities is another whole world. I am not educated for it.

We did not get any course about teaching science to those students. How can I teach science to them?

Half of the participating PSTs referred to insufficient pedagogical knowledge for educating students with disabilities.

I think that there should be specific science teaching methods for teaching science to students with disabilities.

I do not know how I can use the teaching methods that I learned for those students. They are special and the way they learn science can be different. I also do not know how to assess their learning.

Seven of PSTs mentioned that they do not have enough knowledge about disabilities.

When you say students with disability, it does not mean a lot to me. I do not know what those kids can do or cannot do.

PSTs' concerns about students with disabilities

In addition to the PSTs' concerns about themselves, they were also concerned about students with disabilities. There existed three sub-issues under this category. These are: not devoting enough time for disabled students' science learning; not to be able to achieve their science learning in terms of science content and science process skills, and not to be able to help them develop positive attitudes toward science.

All PSTs complained about lack of time to teach science to students with disabilities. Sample statements are:

A class hour is 40 minutes. It is difficult to devote extra time for students with disabilities. I can only focus on other students' science learning.

I am not sure I can teach the topic to all students in the classroom. Disabled students require extra time and there is not time.

Five of PSTs held concerns about not to be able achieve science learning in terms of science content and science process skills.

It is really difficult for me to teach them science content and specific science process skills, for example observation or conducting experiments. It seems really difficult...

Teaching science is related to science content and science process skills. For me to be a successful teacher, students should have both. But I am not sure whether those special students could have.

A majority of PSTs (6 PSTs) were concerned about not to be able to help students with disabilities develop positive attitudes toward science.

I have really concerns if I cannot help them [students with disabilities) like science and science related jobs.

I am not sure whether they [students with disabilities) feel positive attitudes toward science in my classroom.

CONCLUSION

This study aimed to find out the concerns preservice science teachers held for educating students with special needs in their future science classroom together with non-disabled students. Results revealed that they had concerns about themselves related to inclusive education. They were concerned of being unable to cope with extra workload by accepting students with disabilities; lacking of enough training for educating those students; insufficient pedagogical knowledge; and scarce knowledge about disabilities. They were also concerned about students with disabilities in their general science classrooms. They were concerned about whether they can devote enough time for disabled students' science learning, they can teach them science content and science process skills and they can help them develop positive attitudes toward science. As results showed, PSTs hold serious concerns about educating students with disabilities in general science classrooms. Inclusive education is quite common in nowadays, thus they probably may have such students in their classrooms. However, their concerns may lead to frustration and they may feel unsuccessful in educating those students.

RECOMMENDATIONS

In Turkey inclusive education was legislated in 1983. It was 1992-1993 school-year when disabled students were included in pre-college regular classes for the first time. Since then, Ministry of National Education (MoNE) repeatedly articulated one of its mission as to educate disabled individuals with their peers in public and private schools from pre-school to secondary education (e.g. MoNE, 2000; 2010). However, teacher education programs in Turkey do not offer inclusive education courses except the ones that train PTs in special education. As a result, a majority of PTs are not equipped with sufficient pedagogical and practical skills for inclusion in teacher education programs. For that reason, the authors of this study recommend that teacher education programs, regardless of major area, should offer several courses including basic training in special education.

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