Tracking the Development of Students' Teacher Professional Identity in the Malaysian Institute of Teacher Education: Application of ANOVA Repeated Measures

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ARTICLE INFO	ABSTRACT
	Teaching Practicum is one of the most important components in teacher education programme not only in Malaysia but also in other countries in the world. Teaching practicum functions as a platform for student teachers to develop their professionalism and identity as a teacher. Therefore, the main focus of this study is to investigate teacher professional identity development of 384 student teachers from three Teacher Training Institutes situated in the Northern Region Malaysia. The student teachers who are enrolled in a Bachelor of Education programme have carried out their compulsory teaching practicum for eight weeks. The teacher professional identity in this study was measured repeatedly across time at three occasions, namely before, during and after the student teachers have undergone their teaching practicum using a self-developed questionnaire. In addition to the teacher professional identity questionnaires, an instrument to measure the mentor teachers' competency, quality of supervisors and school supporting environment were developed and administered to the same respondents at the end of the teaching practicum which was known as the teaching contextual variables. The data collected was analysed using repeated measures analysis of variance (ANOVA). The findings showed significant and positive changes in teacher professional identity during and after the teaching practicum compared to before the teaching practicum. Teaching contexts such as mentor teachers, supervisors and school supporting environment were also found to show significant interaction effects on the development of teacher professional identity. The implication of the findings is also discussed.

INTRODUCTION

Teaching practicum is widely accepted as a crucial component in teacher education and regarded by student teachers as an opportunity that helps them to develop their confidence, competence and professional identity as teachers (Darling-Hammond, 2010; Elligate, 2007; Grudnoff, 2011; Peters, 2008; Rawlins & Starkey, 2011). Teaching practicum can be considered as a platform for student teachers to apply the knowledge and theories they have learnt in actual classroom and school situations. Through assistance and guidance as well as collaboration with mentors, supervisors and peers in various situations (Ministry of Education, 2008), the student teachers are expected to develop their capability to be an effective and efficient teachers. Experiences collected during teaching practicum are important in shaping positive attitudes, values, identity and beliefs of student teachers towards education and their views on teaching profession (Darden, Scott, & Wetfall, 2001). Actual experience in school is a powerful factor in shaping the student teachers' views towards teaching because they are seen as real teachers (Grootenboer, 2006; Korthagen, Loughran, & Russell, 2006).

Therefore, this study aims to explore teacher professional identity as one of the important mechanisms in coping with challenges. Teacher professional identity is an important factor that can influence self efficacy, professional development, abilities and competencies in coping with rapid changes and challenges in teaching context and practices (Beijaard, Meijer & Verloop, 2000). Teacher professional identity is interpreted as an ongoing process of integration of the 'personal' and the 'professional' elements of becoming and being a teacher (Beijaard *et al*., 2004). This interaction is closely related to the integration of mutual influence of the personal and the social context as prevailed in

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social identity theory (SIT) by Tajfel and Turner (1986) and Abrams and Hogg (2004).

This study is connected to the relevance of professional identity within the framework of teacher education as it is the important foundation in forming teacher professional identity mainly through teaching practicum. Teaching practicum is widely accepted as a crucial component in teacher education and is always highly regarded by student teachers as a component that helps them develop their competency and professional identity as teachers (Darling-Hammond, 2010; Elligate, 2007; Grudnoff, 2011; Peters, 2008; Rawlins & Starkey, 2011).

Accordingly, tracking the development of student teachers' professional identity is a step towards examining how effective the teaching practicum in nurturing the development of their professional identity. Teacher professional identity is seen as a dynamic construct that can change according to their social context as suggested in social identity theory (Abrams & Hogg, 2004). As such teaching practicum and other context variables can be enhancing or hindering factors in shaping teacher profesional identity. This is important to be examined as the development of teacher professional identity may involve feelings of instability and doubt (Dotger & Smith, 2009). The support and guidance from teacher mentors, supervisors, peers and teachers community are assumed to assist the positive development of student teachers' professional identity (Beauchamp & Thomas, 2006; Flores & Day, 2006; Johnson & Napper-Owen, 2011). This article is organized by first reviewing related literature, research methods, findings and followed by discussions and implications of the study.

Review of Relevant Literature:

One of the important aspects in the teacher education program is a school-based experience or often referred to as teaching practice or practicum, professional experience, field research, and training (Brown, Martinez, Romans & White, 2002). Teaching practicum is an important learning stage in the process of developing professional identity and a crucial time in which student teachers have the opportunity to apply things learnt in education institution in the context of real school to become a teacher (Margarida, Ana, Amândio, & Paula, 2012). Student teachers are expected to take part in various activities within the school community such as school and department meetings, professional learning activities and socialization among staff members (Grootenboer, 2006) which then enable student teachers to develop and nurture their professional identity.

Teacher professional identity is attracting increasing attention from researchers in the field of teacher education (Akkerman & Meijer, 2011; Beauchamp & Thomas, 2006; Beijaard, Meijer & Verloop, 2004) and has an impact on the establishment of an effective and efficient teachers. The next section discusses about the concept of identity, various definitions of teacher professional identity and the conceptualization of teacher profesional identity in this study.

Identity:

Identity is a concept that is elusive, complex, ambiguous and often debated by researchers in various fields such as philosophy (Noonan, 2007), sociology (Bernstein & Olsen, 2009), developmental psychology (Bosma & Kunnen, 2008), social psychology (Tajfel & Turner, 1986) and economics (Akerlof & Branton, 2000). Scholars and researchers defined identity as a reflection or perception of self and characteristics owned by an individual (Chris, 2004; Epstein, 1978; Kidd, 2002; Paris, Byrnes, & Paris, 2001). The sources of this identity is related to the role, status, experience or past history, physical properties, and values (Bernstein 1996; Chris, 2004; Kidd, 2002; Paris, Byrnes, & Paris, 2001). The definition shows the imperative of context in influencing the formation of individual's identity that involves the interaction in social groups or with other individuals, and culture. As such it creates similarity or differences between the identities of individuals within its social group (Bernstein 1996; Chris, 2004; Epstein, 1978; Kidd, 2002; Melluci, 1996; Paris *et al*., 2001). Therefore, identity is formed as a combination of three aspects, namely: (a) the interpretation of identity, (b) the source of identity interpretation, and (c) the effect of context or environment.

Meanwhile Gee (2001) assumed that identity is dynamic, not inherited and can be considered as multidimensional which refers to a variety of self-concept and roles. Gee's (2001) opinion is in line with Bernstein (1996) and Paris *et al*. (2001) which state that individual is continuously changing and re-evaluating their identity in order to understand themselves based on their own experience and expectations for the future. In all, identity can be conceptualised as individuals' reflection of their similarities or differences in their social group. The identity of an individual is multidimensional in nature, dynamic and varies based on the context or environment of the individual, and develop steadily throughout their life span.

Teacher Professional Identity:

There is no single and common definition of teacher professional identity (TPI) agreed by all researchers in this field (Antonek, McCormick & Donato, 1997; Decors & Vogtle, 1997; Graham & Young, 1998; Mawhinney & Xu, 1997; Nixon, 1996). Researchers who studied Teacher Professional Identity (TPI) provided different ways in conceptualising, operationalising, and measuring this concept (Killen, Meijaard, & Den Brok, 2012). In education the focus is on the factors affecting

teachers' professional identity and its development (eg, Coldron & Smith, 1999; Schepens, Aelterman & Vlerick, 2009). However, most of these researchers agreed that professional identity is continuously developed based on individual's perception of himself as a professional teacher (Beijaard, 1995; Coldron & Smith, 1999; Dillabough, 1999; Volkmann & Anderson, 1998).

According to Beijaard *et al*., (2004) professional identity is generally related to how teachers view themselves as teachers which is based on their interpretation of the continuous interaction with their context. On the other hand, Kelchtermans (2009) stated that teachers develop an interpretative framework in their careers and the framework is shaped by the interaction between individual teachers with the social, culture and their working conditions. According to Kelchtermans (2009), the teacher's professional identity is shaped by the interaction between the individual and the context. The formation of teacher professional identity is affected by several factors such as teachers' interaction with their social contexts, culture, restructuring work conditions and work context, internal and external influences (Kelchtermans, 2009). Professional identity also provides a set of shared characteristics and values which is capable of distinguishing between certain groups (Sachs, 2005). Membership in the teaching profession has led teacher to have shared identity with their profession and establish their professional identity, but at the same time differences exist as a result of a personal perspective on the context and beliefs (Burke & Stets, 2009; Canrinus, Helms-Lorenz, Beijaard, Buitink, & Hofman, 2011). This is in line with Puurula and Löfström (2003) was contended that there are three distinguished self components in the development of Professional Identity namely: (i) self as an active individual as a requirement for professional development; (ii) self as a skilled professional as a requirement for competency; and (iii) self as members of the professional community as a requirement for its commitment to the professional community. Knowles (1992) stated that the concept of teacher professional identity is closely related to the concept or image of a teacher or teacher self-concept. According to Knowles, the concept of self-image is a strong concept in determining the student teachers' thinking about teaching and learning, professionalism as a teacher, and attitudes toward teacher training.

Beijaard *et al*., (2004) have conceptualised teacher professional identity based on analysis of 25 studies and obtained more comprehensive conceptualisation of Teacher Professional Identity. The analysis showed that most researchers emphasized personal aspect and professional role of teachers in determining teacher professional identity dimensions by taking into account the cultural context and professional environment (Antonek,

McCormick & Donato, 1997; Beijaard, Verloop & Vermont, 2000; Dillabough, 1999; Samuel & Stephens, 2000; Volkmann & Anderson, 1998).

The conceptualization of teacher professional identity by many researchers is strongly based on social identity theory. This theory emphasises the socio-cognitive process, response to the context, behaviour and relationships between groups, and a clear distinction between the role of the individual and teams (Abrams & Hogg, 1998, 2004). Abrams and Hogg (2004) contended that the behaviour and identity change and evolve continuously according to the situation, the resilience of individuals, uniqueness and similarities with other identities. The transition from individual identity (student teachers) to group identity (the teacher) is one of the important aspects emphasized in social identity theory in order to understand the different behaviour and the relationship between group that dynamically changing the individual identity (depersonalization) to become a member of a group (Hogg *et al*. , 1995; Stets & Burke, 2000). The shift of their identity creates identity crisis or internal conflict and emotional disturbance of student teachers as stated in Marcia's identity status theory (Marcia, 1966). This caused the student teachers to examine and re-evaluate their values, beliefs, and goals that have been held through the exploration of new possibilities to form new beliefs, receive different values, and make different choices.

Based on this review, teacher professional identity can be defined as the perception of self and role as a teacher in terms of behaviour, values, beliefs, attitudes and practices based on continuous interaction within a social and work contexts (Abrams & Hogg, 1998, 2004; Beijard *et al*., 2004; Coldron & Smith, 1999; Kelchtermans, 2009; Lerseth, 2013; Volkman & Anderson, 1998). In this study, teacher professional identity is conceptualized to have three main dimensions as follows.

Dimension of Self:

Self Dimension is defined as an individual process in integrating various statuses, roles, and experiences to form a clear picture of oneself which forms one's self-concept and self-efficacy. The dimension of self comprised of teacher self-concept and teacher self-efficacy. Self concept is an overall view of oneself (Burke & Stets, 1998; Hamacheck, 1987). It is a composite of ideas, beliefs or perceptions of belonging to one's self which includes a physical, psychological characteristics, social and emotional, ambition and achievement (Block & Robins, 1993; Weiten, Dunn, & Hammer, 2012; Woolfolk, 2000). In this study, self-concept is conceptualized as a 'student teachers assessment of their self-concept in three aspects which are personal, social and work'.

Meanwhile the self-efficacy is defined by Bandura (1986) as a judgement about their ability to

manage and implement necessary actions to achieve the performance set. Self Efficacy is based on Social Cognitive Theory that emphasizes how cognitive, behavioral, personality, and environmental factors interact to determine the motivation and individual behavior (Crothers , Hughes, & Morine, 2008). In this study, self-efficacy is operationalised as a 'student teachers assessment in their ability to manage the classroom , engage students in learning activities and using effective teaching strategies'.

Student Teachers' Professional Dimension:

Professional dimension is measuring two aspects namely professional orientation and task orientation on teaching and learning. Profession is a specific task performed by professionals who have specialized training in a particular field that demands professional skills, specialized in certain areas, autonomous, concerned with the quality of service, adhere to the code of ethics of the organization and are responsible for their action in order to meet the aspirations of the people and state (Flexner, 1914 & Lieberman, 1976). In this study Professional dimensions comprise of professional orientation and task orientation on teaching and learning . Therefore, based on the opinion given by Väthäsantanen *et al*. (2008), professional orientation can be conceptualised as one's perceptions on the teaching profession and the changing roles of teachers and their belief what is important in their work. Meanwhile, task orientation is conceptualized as the roles and responsibilities that must be fulfilled by the teachers during their teaching practicum which covers four aspects, namely; (i) Planning, (ii) Implementation, (iii) Assessment, and (iv) Teaching reflection.

Teacher Commitment:

The commitment is conceptualised to consist of three components namely (i) commitment to teaching, (ii) commitment to students, and (iii) commitment to the profession. Teacher's commitment to teaching is operationalised as individual psychological relationship with his work or in this study to their teaching work (Lee, Carswell & Allen, 2000). Teacher's commitment to the profession is a person's attachment to his/her profession (Blau, 1985), identification and job satisfaction as a teacher (Somech & Bogler, 2002), getting involved in works related to their professional field, improving professional skills, knowledge, and ability to improve the work quality (Meyer, Allen, & Topolnytsky, 1998). While the teachers' commitment to students refers to the willingness of teachers to do more to help low achievers, in other words focusing on students, teaching and student achievement (Kushman, 1992).

Teaching Contextual Variables:

Teaching context is defined as environmental conditions that affect teaching and learning, such as physical, social, institutional, and personal aspects. The physical aspect refers to the classroom and the social aspect refers to relationships between teachers and students. The institutional aspect refers to the cultural norm that exists in the school and the personal aspect refers to individual students or teachers. Results of several research showed that the factors that influence the development of teacher professional identity consist of classroom practices (Flores & Day, 2006); school environment (Beauchamp & Thomas, 2009); leadership (Beauchamp & Thomas, 2009; Flores & Day, 2006); students (Beauchamp & Thomas, 2009); peers (Beauchamp & Thomas, 2009); supervisors (Walkington, 2005); and mentors (Cattley, 2007; Walkington, 2005). In this study, there are three main factors related to the teaching practicum are selected and measured, namely: (i) the school supporting environment; (ii) teacher mentors; and (iii) supervisors.

School supporting environment variables involve student teachers' perspective on their relationship with other teachers, students, head of departments and school administrators and the influence on the development of their professional identity. Research by Beauchamp and Thomas (2009), Smagorinsky, Moore, Cook, Jackson, and Fry, (2004) showed that the school environment affects the development of student teachers' professional identity during teaching practicum. There are three dimensions of school supporting environment were undertaken in this study. The dimensions are; (i) relationship – that is to what extent the student teachers' perceive their social environment supports and helps them during their teaching practicum; (ii) Self development - that is to what extent the school promotes personal and professional growth and self improvement within school environment; and (iii) Maintenance and Systems Change that measures to what extent the school environment create an orderly and safe environment, establish clear expectations, and respond to changes (Moos, 1968; Rentoul & Fraser, 1983).

The teacher mentor is an experienced teacher appointed as a mentor to assist student teachers during their teaching practicum. Crewson and Fisher (1997) defined teacher mentor as experienced teachers who are willing to share their expertise with new teachers and act as a resource to them. In this study the roles of teacher mentor involves assisting the student teachers in executing their task and responsibilities. A Five Factors Mentoring Model (Hudson & Skamp, 2003) was used to assess the competence of teacher mentor. These five factors are (a) personal attributes; (b) pedagogical knowledge; (c) the system requirements; (d) modeling; and (e) feedback (Hudson & Skamp, 2003; Hudson *et al*., 2005).

The supervisor (teacher educator) functions as a consultant, advisor, motivator, evaluator and provides feedback in order to help student teachers to carry out their teaching practicum in school with confidence (Turney *et al*, 1982). As supervisors, they not only serve as counselors, instructors, observers, and assessor (Turney, Eltis, Hatton, Thew, & Towler, 1982), but also as leaders, the individuals who have the responsibility to lead the student teachers. Leadership in supervision is the way how to work with teachers in an organization to accomplish the tasks entrusted to him (Wiles & Bondi, 1991). In this study the role of supervisor and his competency involve assisting student teachers to cope with problems and challenges during their teaching practicum.

Research Purpose, Objectives and Questions:

This study aims to investigate the development of student teachers' professional identity in Teacher Training Institutes situated in the Northern Region of Peninsular Malaysia who are undergoing a two month teaching practicum session. The objectives of the study are as follows.

1. To investigate the development of teacher professional identity among student teachers across three occasions namely; before, during and after the teaching practicum.
2. To investigate the influence of teacher mentors, supervisors and school supporting environment on the development of student teachers' professional identity across three occasions namely; before, during and after the teaching practicum.

Based on these objectives, respective research questions are advanced:

1. Is there any changes in student teachers' professional identity over the three occasions namely; before, during and after they experiencing teaching practicum?
2. What is the impact of teacher mentors, supervisors and school supporting environment on the development of student teachers' professional identity across time namely; before, during and after they experiencing teaching practicum?

Research methodology:

This study employed quantitative research approach to examine the development of students' teacher professional identity (TPI) on three different occasions namely; before, during and after completing the teaching practicum session in schools. The questionnaires were developed, and adapted from previous study to measure teacher professional identity and factors that may have an effects on the development of TPI or known as teacher teaching contextual variables. Teacher professional identity was measured using a questionnaire that comprised of five dimensions, namely student teacher Self-Concept, Self-Efficacy,

Professional Orientation, Task Orientation to Teaching and Learning and Teacher Commitment (the instrument is known as questionnaire 1). These questionnaires consist of items that measured teacher professional identity (as in questionnaire 1) and items that measured teaching contextual variables such as teacher mentor competency, supervisor quality and school supporting environment (known as questionnaire 2) which were administered after the student teachers had completed their teaching practicum. Each item or statement in the questionnaires used a five-point Likert scale ranged from 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Agree (A), 4 = Strongly Agree (SA) and 5 = Very Strongly Agree (VSA). Whereas the self-efficacy constructs used response categories based on the degree of confidence of student teachers to the statements given. In all, the questionnaire 1 contained 46 items and questionnaire 2 consisted of 80 items.

The target population for this study involved only student teachers from the Bachelor of Education Program (PISMP), January 2012 intake at the Malaysian Teacher Education Institute (IPGM) located in the Northern Region of Peninsular Malaysia. The multistage cluster sampling method that involves four-stages of sample selection as proposed by the Gay, Mills, and Airasian was employed (2011). The first stage was selecting the teacher Training Institutes. The second stage was selecting the student teachers and the total of 384 respondents from three Northern Region Teacher Training Institutes comprising 132 males and 252 females participated in the study. Data was analysed using repeated measure analysis of variance (ANOVA) which was appropriate for data collected in several occasions (T1=before practicum; T2=during practicum; and T3=after practicum).

Research Findings:

The findings are discussed based on the research questions.
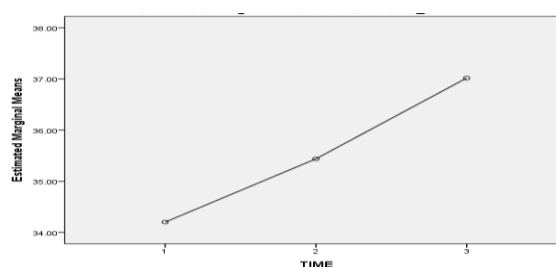
Changes in teacher professional identity across time:

Table 1 and Figure 1 show the TPI mean (*M*) and standard deviation (*SD*) as well as diagrammatic illustration of TPI development. The results indicate that TPI increases over time or occasions (T1: $M = 34.20$, $SD = 4:35$; T2: $M = 35.44$, $SD = 4.31$; and T3: $M = 37.02$, $SD = 3.85$). These changes are found to be significant across time, Wilks' Lambda = 0.76, $F_{(2, 382)} = 58.85$, $p < 0.001$, multivariate eta squared = .24. Using commonly used guidelines proposed by Cohen (1988) (.01=small effect, .06 = moderate, .14=large effect), this result suggests a very large effect. The results show an increasing mean scores across time for teacher professional identity, $F_{(1,383)} = 97.84$, $p < 0.001$, partial eta squared = .20. ANOVA analysis (pairwise comparison) identifies

significant changes in scores of respondents in all three questionnaires. These results suggest that there is a statistically significant effect for time on the

teacher profesional identity development. Post-hoc comparison showed a significant difference in mean scores between T1 and T2, and T2 and T3.

Table 1: Descriptive Statistics of the Questionnaire for Time 1, Time 2 and Time 3.

Questionnaire administration	Number of respondents (N)	Mean Score (*M*)	Standard Deviation (*SD*)
Teacher's Professional Identity (TPI) T1	384	34.20	4.35
Teacher's Professional Identity (TPI) T2	384	35.44	4.31
Teacher's Professional Identity (TPI) T3	384	37.02	3.85

Fig. 1: Development of Teacher Professional Identity across Time.

The results clearly show significant development of TPI across time and based on these findings it can be inferred that the teaching practicum has a positive impact on the development of professional identity of student teachers. The more time they spend undergoing their teaching practicum, the higher their teacher profesional identity.

The Impact of Teaching Contextual Variables:

This study measured three teaching contextual variables namely, the competency of teacher mentor, the quality of supervisor and school supporting environment. Prior to the analysis, these variables were recorded into two categories, below and above the scale mean scores, that was below and above the mean score value. The category below the mean score was assigned as teacher mentor or supervisor with low competency and quality in providing guidance to student teachers as well as less supporting school environment as perceived by those student teachers. The results obtained from the repeated measure ANOVA are discussed as follows.

Teacher Mentor Competency:

The analysis was conducted by undertaken TPI as dependent variables with teacher mentor competencies (0=less competence and 1= more competence) across time/occasion factors. The result indicated a violation to the assumption of independency as shown by the Mauchly's Sphericity test and there was a need to adjust the degree of the freedom [p=.000]. Adjustment using the Huynh-Feldt and the between subject test indicated that significant main effect of teacher mentor competency on TPI [F $(1.78, 677.41) = 47.00, p=< .05]$ as well as across time or occasions [F=47.00, p < .001]. The result also indicated significant interaction effect between TPI and teacher mentors competency [F $(1.78,$

$677.41) = 22.76, p=<.05]$. This finding suggests that the student teachers' professional identity development is affected by teacher mentor competency. The fndings also showed a significant effect for time, Wilks' Lambda = 0.78, F $(2, 380) =$ 54.38, p =0.00, multivariate eta squared = .22.

Figure 2 shows sharp increase of TPI across time (T1, T2 and T3) when the student teachers are guided by more competent teacher mentors. As illustrated in Figure 2, the more competent the teacher mentors are in providing guidance to the student teachers, the higher the development or improvement in the student teachers' professional identity. The results clearly showed that teacher mentors' competency may affect student teachers' professional identity development. This indicates the importance of teacher mentors' competency in providing guidance and assisting student teachers during their teaching practicum in schools.

The pairwise comparison using Bonferroni procedure to compare main effects (after error type 1 was controlled using Bonferroni method) showed significant mean difference of teacher professional identity between T1 and T2 (mean difference T2 - T1 (35.25 – 34.17) = 1.08, p <.05), between T1 and T3 (mean difference T3 - T1(36.72 -34.17) = 2.55, p <.05) as well as between T2 and T3 (mean difference T3 - T2 (36.72 – 35.25)= 1.46, p <.05).

Supervisor Quality:

The repeated measures ANOVA test indicated significant main effect of supervisor quality on TPI [F $(1.78, 679.43) = 47.72, p= .00]$ after adjusting the violation to independency (Mauchly's test of sphericity is significant [p=.000].) The result also showed significant effect of time (occasion) [Wilks' Lambda = 0.78, F $(2, 380) = 54.38, p = 0.00)]$. The pairwise comparison (after error type 1 is controlled

using Bonferroni method) showed that, significantly, the mean value of the teacher professional identity at T2 was superior to that of T1 (mean difference T2 - T1(35.24 – 34.2 = 1.06, p <.05), professional identity at T3 is higher than T1 (mean difference T3 - T1 (36.72 – 34.18)= 2.54, p <.05) and professional identity at T3 is higher than T2 (mean difference T3 - T2 (36.72 – 35.24)= 1.48, p <.05). This shows that there is an overall increase in teacher professional identity at T2 (during practicum) and T3 (after

practicum) compared to T1 (before teaching practicum). Mean difference of teacher professional identity after the teaching practicum which is T3 showed significant improvement compared to before practicum. These results showed that the supervisor could change the professional identity of student teachers and there was a significant effect of the interaction between student teachers and supervisors.
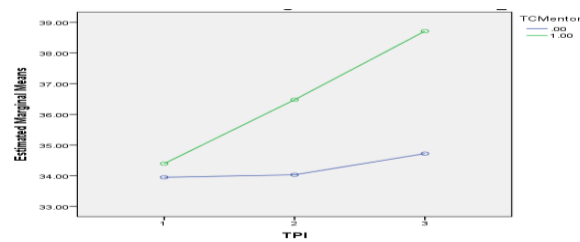
Fig. 2: The Interaction Effect of Teacher Mentors' Competency on Teacher Professional Identity Development across Time.

The results obtained also showed significant interaction effects between TPI and supervisors' quality [F (1.78, 679.43) = 29.77, p= .00] and indicated that supervisors' quality affected the development of professional identity among student

teachers. As shown in Figure 3, the higher the quality of supervisors in providing guidance to student teachers, the higher the development or improvement of teacher professional identity (TPI) across time.
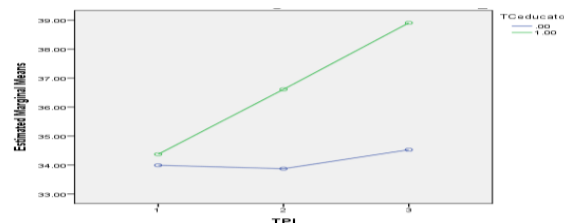
Fig. 3: The Interaction Effect of Supervisors' quality on Teacher Professional Identity Development across Time.

School Supporting Environment:

The between subject test of repeated measures ANOVA (after adjusting the violation to spherecity) showed there was a significant main effect of school supporting environment [F (1.76, 662.15) = 57.59, p=.00] and across time and occasions [Wilks' Lambda = 0.75, F (2, 376) = 62.21, p = 0.00)]. Test results after adjustment by using the Huynh-Feldt value showed that there was a main effect of school supporting environment variables. There was also significant interaction effect between TPI and school supporting environment [F (1.76, 662.15) = 7.13]. This finding showed that the student teachers' professional identity development depends on supporting environment in the schools.

The result of pairwise comparison showed that, significantly, the mean value of the professional identy of teachers at T2 was higher to that of T1 (mean difference T2 - T1 = 1.27, p <.05), professional identity at T3 is higher than T1 (mean difference T3 - T1 = 2.86, p <.05) and professional

identity at T3 is higher than T2 (mean difference T3 - T2 = 1.59, p <.05). This shows that compared to T1 (before the practicum), there is an overall increase in teachers' professional identity at T2, (during practicum) and T3 (after practicum). Mean difference of teacher professional identity at T3, after the teaching practicum showed significant improvement compared to before practicum (T1).

Figure 4 shows that more positive school supporting environment produces more positive development of professional identity compared to less positive school supporting environment.

Conclusion and Discussion:

Quantitative data shows that school-based practicum is a critical experience in the development of teacher professional identity of the respondents. The scores of teacher professional identity among the respondents seem to be quite homogeneous and low before they undergo teaching practicum (T1). Actual experience while undergoing practical training in

schools can either strengthen or weaken the formation of teacher professional identity in the teacher education institutes (Grootenboer, 2006). Anyhow, teacher professional identity changed and evolved positively and increased linearly (see Figure 2) during teaching practicum (T2) and after the respondents have completed their teaching practicum (T3). Results showed that the teaching practicum had a great influence on the development of teacher professional identity of the respondents in this study. Time was also found significant for the development of teacher profesional identity in teaching practicum. This finding indicates that teacher professional identity is not a static trait but dynamic and was

formed continuously in building individual's perception of himself as a professional teacher (Beijaard, 1995; Coldron & Smith, 1999; Dillabough, 1999; Volkmann & Anderson, 1998). Teaching experience in the classroom resulted in acculturation into the teacher's community involving values, beliefs and attitudes of the community that is not stated but is incorporated into the teaching experience (Lave & Wenger, 1991). This reinforces the concept described by Abrams and Hogg (1998, 2004) that the community and the social context play an important role in identity formation.
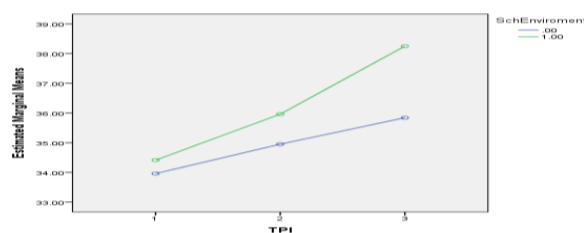
Fig. 4: The Interaction Effect of School Supporting Environment on Teacher Professional Identity Development across Time.

This study is also in line with the findings by some researchers who discovered that the context of teaching such as teacher mentors (Cattley, 2007; Hudson & Skamp, 2003; Walkington, 2005) supervisors (Turney et al, 1982; Walkington, 2005; Wiles & Bondi, 1991) and the school environment (Beauchamp & Thomas, 2009; Smagorinsky, Moore, Cook, Jackson, & fry, 2004) affect the formation and development of professional identity among student teachers who had undergone practicum training in real schools. Roles, responsibilities, guidance and support carried out by mentors and supervisors in assisting the student teachers during their teaching practicum have a huge impact on the development of teacher professional identity. The findings indicate that a significant interaction effect exists between the school supporting environment and teacher professional identity that is much larger compared to the teacher mentor and supervisor variables. However, all of these factors seem to be assisting positive development of teacher profesional identity. The findings are also in line with Social identity theory (Tajfel & Turner, 1986; Abram and Hogg, 2004) that couples the importance of social context and environment in shaping individual's identity.

Implication of the studies:

Consistency between the actual experience during the teaching practicum, insights and knowledge built through programmes offered at the teacher training institute seem to be necessary for the development of teacher professional identity among student teachers. Student teachers with a positive assessment of the practicum experiences show

positive changes of teacher profesional identity. During the practicum, the student teachers were engaged in many tasks and real-life experiences related to their career as a teacher. This demonstrates the power of experience during practicum training in shaping and determining the development of professional identity of student teachers. Therefore, teacher mentors, supervisors and school administrators must work together so that the experiences gained from teaching practicum is capable of forming positive teaching practices and develop and strengthen teacher professional identity. This is because teacher professional identity is shaped by the dynamic interaction between teaching theory held by an individual and self-perception (eg interpretation of the self-concept and self-efficacy), both of which are influenced by social and working context (Abrams & Hogg, 1998, 2004 ; Beijard et al., 2004; Coldron & Smith, 1999; Kelchtermans, 2009; Kreber, 2010; Lerseth, 2013; Volkman & Anderson, 1998). In addition, the results of this study can help to develop and improve teacher education programmes and pre-service teaching practice. Teacher education programmes must be designed to bridge the gap between theory and practice to prepare teachers into the real working world. Teacher mentors and supervisors should be given more training in order to upgrade their competencies and quality in assisting student teachers during teaching practicum. The results show that they have positive influence on student teachers' profesional identity development. Schools need to provide supporting environment to benefit student teachers in developing their positive identity as teachers.

However this study was limited on teacher mentors, supervisors and school supporting environment.

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