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Predictors of Professional Identity among Early Childhood Teacher Students

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Abstract: Professional identity has been suggested to be decisive for efficiency and high work quality among the workforces. Central in early childhood teacher education is the development of students to become professional actors in a workplace setting upon graduation, thus developing a professional identity. However, the field lacks knowledge about the factors that are associated with professional identity among early childhood teacher students. Thereby, the aim of this study was to investigate the predictive value of learning climate (performance climate and mastery climate) in interaction with professors and academic self-efficacy on professional identity. The study adopted a quantitative cross-sectional approach, whereby data were collected by questionnaire. A total of 190 (first- and second-years students) attending a three-year bachelor's degree in early childhood teacher education completed the questionnaire. The results show that learning climate and academic self-efficacy are significantly associated with professional identity among early childhood teacher students, indicating the importance of facilitating a learning environment that promotes students' academic self-efficacy, mastery, and intellectual development. These findings indicate the importance of facilitating an environment that promotes students' academic self-efficacy, intellectual development, and a mastery-oriented climate, in addition to strengthening the connection and interaction between students and professors.

Keywords: professional identity; academic self-efficacy; learning climate; mastery climate; performance climate; interacting with professors; early childhood teacher students

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1. Introduction

1.1. Professional Identity

Early childhood teacher education encompasses a professional journey whereby students undergo a development from being a novice student to a qualified early childhood teacher. This developmental voyage represents a professional socialization where students develop a conscious awareness of themselves as early childhood teachers. In the course of 3 years of education, they internalize knowledge, skills, attitudes, and values that are characteristic for members of their profession, and consequently develop a professional teacher identity [1]. Professional identity can be defined as "relatively stable views, reflection patterns on professional behavior, and the accompanying self-image" [2] (p. 337). A person with an identity that is closely associated to her/his occupation, roles, and values will tend to develop a commitment to perform competently and legitimately in the context of the profession [3]. Developing a professional identity as a teacher has been highlighted as important in understanding teaching experiences, practice, and professional development [4–6]. Furthermore, professional identity is also sought to contribute to increased meaning and satisfaction with the work conditions [3]. Consequently, it is no surprise to learn that teacher education programs have been found to be crucial for professional development, considering continuous exposure to professional practice and interaction within the group of fellow students [7].

To our knowledge, research that directly investigates the factors contributing to professional identity among early childhood teacher students is scarce. However, research in various contexts (e.g., school, health, social work) has identified a positive association between professional identity and several motivational factors such as work engagement, willingness to cooperate, efficacy, professionalism, occupational development, success, and job satisfaction [7–9]. Among the influencing factors on professional identity in teacher students, learning climate, teacher support and academic efficacy seem to be of significant importance [7,8,10–14].

1.2. Learning Climate

According to achievement goal theory [15–17], students often perceive and define their learning context in one of two fundamentally opposite orientations. One refers to development or mastery orientation, whereby individuals seek improvement, continuous learning, and intellectual development. In contrast, another refers to comparison or performance orientation, whereby people tend to emphasize the comparison of their relative abilities, leading potentially to constant competition. Mastery and performance orientations represent goal structures that determine how students construct meaning about what constitutes successful achievement in the given learning context [18]. Perceiving that the learning environment emphasizes personal improvement and task mastery is positively related to personal task goals, the use of higher-level cognitive strategies, academic self-efficacy, and positive behavior. In contrast, perceiving that the learning environment emphasizes the demonstration of ability relative to others is related to less positive patterns of learning and views of self [19]. Professional development occurs through the experience of being part of a learning community in which teachers share their practice, stimulate one another, and support and discuss their work [20]. Thus, the belief that a mastery orientation context may exert an influence on professional identity seems tenable.

1.3. Interacting with Professors

Teaching is a setting that involves relationships between students and professors [21]. There seems to be a common agreement among researchers that university professors play a significant role in facilitating the development of students' professional identity [7,22,23]. Two main dimensions have been identified when describing the educator–student relationship: the affective and support dimensions. The affective dimension describes the bond built between students and professors, forming the basis for a secure and effective positively experienced relationship. The support dimension describes the support that must be provided through the relationship for students' success at a university, e.g., professors answering emails promptly and setting clear expectations [23]. A supportive professor–student relationship, with professors who carefully listen and motivate, give constructive and fair feedback, has been related to improved effort, performance and well-being, and increased self-esteem [24]. Furthermore, Danielewicz [25] points to the impact the pedagogy adopted within the teacher education programs can have on students' identity development. Specifically, research has identified that social support must be promoted, and the role of the professor is of importance in providing students with resources as protective factors with regard to resilience, making them more able to cope successfully during their studies [26]. The quality of the relationship between the professor and student in a learning context has been found to be crucial for developing a positive learning climate, in addition to developing and learning [23,27].

1.4. Academic Self-Efficacy

Several studies in various contexts show that identity is related to self-efficacy [11,28,29]. Self-efficacy is defined as "the belief in one's capabilities to organize and execute courses of action required to produce given attainments" [30] (p. 3). With high expectations of self-efficacy, more effort will often be put into a task, which in turn improves performance [30,31]. Research has shown that efficacy beliefs influence behavior, effort, and perseverance in

the face of challenges and failures, and the ability to cope with the demands associated with the chosen course. According to Bandura [30], self-efficacy is not a generalized or decontextualized personality trait, but a set of personal beliefs regarding one's capabilities in specific situations and performance domains; for example, an academic context. The effect on self-efficacy is better understood when its assessment is domain-specific rather than focused on moral general behaviors [30–32]. In the academic context, self-efficacy is generally identified as academic self-efficacy (ASE) [33]. Academic self-efficacy refers to personal beliefs about one's ability to organize and execute actions to attain desired levels of academic performance [33,34]. Academic self-efficacy increases students' effective cognitive strategies in learning, their ability to manage learning environments more effectively, their ability to monitor and regulate their own effort, and their confidence in mastering academic subjects [35]. In turn, this may not only influence their self-confidence as students, but also affect their confidence in becoming a future early childhood education teacher, and subsequently influence their professional identity [31].

Several previous studies [12–14] have argued that further research is needed to better understand and conceptualize the support that early childhood teacher students need to form a professional identity. Based on the lack of research attention related to antecedents that can contribute to professional identity among early childhood teacher students, this study is warranted. Thereby, the aim of this study was to investigate the predictive values of learning climate (performance climate and mastery climate), interacting with professors, and academic self-efficacy in relation to professional identity among students in early childhood education studies.

2. Materials and Methods

2.1. Early Childhood Education Studies in a Norwegian Context

In the Norwegian context, early childhood education and care has undergone significant expansion over the past four decades. Originally conceived as mere care facilities for children while their parents were at work, these institutions gained recognition as integral components of the education system in 2005. Presently, early childhood teacher education is offered as a three-year bachelor's program at universities in Norway. Guided by national guidelines established to ensure uniform quality standards across early childhood teacher education, these programs are continuously revised to align with evolving knowledge in the field.

The curriculum for the bachelor program of early childhood teacher education is structured around six core areas of academic inquiry: children's development, play, and learning; nature, health, and movement; society, religion, beliefs, and ethics; language, text, and mathematics; art, culture, and creativity; and leadership, cooperation, and development. While the first five areas are covered during the initial two years of study, the focus shifts to leadership, cooperation, and development in the final year.

Integral to the educational experience are practicum placements totaling 100 days over the three-year period. These placements occur each semester, varying in duration, and are designed to incorporate learning outcomes from the corresponding academic areas of knowledge. Moreover, they adhere to a model emphasizing pedagogic leadership and practice, centered on three key areas: self and children, children and staff, and children and preschool [36]. Practicum experiences take place in partner preschools committed to student training.

2.2. Sample and Study Design

A total of 221 first- and second-years students attending a three-year bachelor's degree in early childhood education studies at the University of Agder in southern Norway were invited to take part in the study. The study had a cross-sectional design and data were collected during a classroom lecture. Prior to data collection, all participants received oral and written instructions from the project coordinator with regard to how to complete the data-collection. The study was registered by the Norwegian Centre for research Data (Ref.

No. 39406), and followed their guidelines for collecting, storing, and sharing data. Prior to giving their consent, all participants were thoroughly informed about the study and any impact of taking part in it. Participants were also offered the opportunity to withdraw from the study at any time, without giving a reason.

2.3. Variables

Data were collected using a questionnaire developed based on previously developed and tested sets of questions (Table 1). An overview of the questions used to assess the different variables is displayed in Table 1 together with the value of internal consistency (Cronbach's alpha).

2.4. Professional Identity

Professional identity was measured through a set of nine items developed by Adams et al. [1]. The items were rated on a five-point Likert-type scale ranging from one (strongly disagree) to five (strongly agree). The scale had a one-dimensional property.

2.5. Learning Climate

Mastery climate and performance climate were measured by a set of eleven items developed by Roeser et al. [19]. The scale consisted of six items comprising mastery climate and five items comprising performance climate. Both scales were rated on a five-point Likert-type scale ranging from one (not at all true) to five (very true).

2.6. Interacting with Professors

Interacting with professors was measured utilizing six items developed by Roberts and Clifton [37], aiming to elucidate the student's feeling of well-being experienced through supportive and helpful relationships with their professors in the education they are undergoing. The answers were rated on a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree).

Table 1. An overview of the different questions used to assess the variables and the adjacent Cronbach's alpha value for the different variables.

Variable	Questions	Cronbach's Alpha
Professional identity	I feel like I am a member of the early childhood teacher profession	0.76
	I feel I have a strong ties with members of the early childhood teacher profession	
	I am often ashamed to admit that I am studying early childhood teacher studies	
	I find myself making excuses for belonging to the early childhood teacher profession	
	I try to hide that I am studying to be part of the early childhood teacher profession	
	I am pleased to belong to the early childhood teacher profession	
	I can identify positively with members of the early childhood teacher profession	
	Being a member of the early childhood teacher profession is important to me	
	I feel I share characteristics with other members of the early childhood teacher profession	
Mastery climate	In the early childhood teacher education, professors believe all students can learn	0.74
	In the early childhood teacher education, understanding the work is more important than getting the right answers	
	In the early childhood teacher education, mistakes are okay as long as we are learning	
	In the early childhood teacher education, professors think how much you learn is more important than test scores or grades	
	Professors in the early childhood teacher education want students to really understand their work, not just memorize it	
	Trying hard counts a lot in the early childhood teacher education	

Table 1. *Cont.*

Variable	Questions	Cronbach's Alpha
Performance climate	In the early childhood teacher education, professors treat students who get good grades better than other students	0.85
	In the early childhood teacher education, only a few students get praised for their school work	
	In the early childhood teacher education, professors only care about the smart students	
	The early childhood teacher education has given up on some of its students	
	In the early childhood teacher education, special privileges are given to students who get the highest grades	
Interacting with professors	Professors in early childhood teacher studies treat me fairly	0.92
	Professors give med the marks I deserve	
	Professors help me do my best	
	Professors take personal interest in helping me with my work	
	Professors are fair and just	
	Professors listen to what I say	
Academic self-efficacy	I'm certain I can master the skills taught in class this year	0.92
	I'm certain I can figure out how to do the most difficult class work	
	I can do almost all the work in class if I don't give up	
	Even if the work is hard, I can learn it	
	I can do even the hardest work in class if I try	
	I am confident that I can figure out how to do even the most difficult work *	

* This question was added to the items developed by Midgley et al. [38].

2.7. Academic Self-Efficacy

Academic self-efficacy was assessed by a set of six items, five of which were developed by Midgley et al. [38]. The last item was added. The following is an example of one of the items from the questionnaire by Midgely et al. [38]: "I'm certain I can master the skills taught in class this year", and "I can do almost all the work in class if I don't give up". The added item was: "I am sure that I will figure out how to do even the most difficult work".

2.8. Analysis

To investigate the predictive value of performance climate, mastery climate, interacting with professors and academic self-efficacy on professional identity, the data were analyzed using Statistical Package for the Social Sciences (IBM SPSS statistics 25). An inspection of skewness and kurtosis, mean–median difference, histogram, and Q-Q-plot indicated acceptable normally distributed data. A standard multiple linear regression analysis was used to assess the impact of mastery climate, performance climate, interaction with professors, and academic self-efficacy on professional identity, and listwise deletion was applied. Excel was used to create the two tables (Tables 2 and 3) for the visual presentation of the results. Hence, descriptive data of all variables are given in Table 2, together with the results from the bivariate correlation analysis. The results from the regression analysis are presented in Table 3 as standardized coefficient (beta) and adjusted R square (R^2) with a significance value of $p \leq 0.05$.

Table 2. Mean score, standard deviation, and bivariate correlation between the included variables.

	M	SD	MC	PC	IP	ASE	PI
MC	3.85	0.72	-				
PC	1.83	0.69	−0.284 **	-			
IP	3.95	0.71	0.487 **	−0.433 **	-		
ASE	3.90	0.75	0.353 **	−0.052	0.278 **	-	
PI	3.05	0.53	0.336 **	0.047	0.206 **	0.410 **	-

Note: MC—mastery climate, PC—performance climate, IP—interacting with professors, ASE—academic self-efficacy, PI—professional identity, M—mean, SD—standard deviation. ** $p < 0.001$.

Table 3. Illustrates the unique contribution of each variable to professional identity assessed by multiple regression, given by R squared for the model, beta values, t-values, and *p*-values for each variable.

		β	t	R^2
				0.23 **
Constant	1.05		3.37	
MC		0.24 *	3.05	
PC		0.16 *	2.25	
IP		0.08	0.94	
ASE		0.32 **	4.51	

Note: MC—mastery climate, PC—performance climate, IP—interacting with professors, ASE—academic self-efficacy, PI—professional identity, β—standardized coefficient (beta), R^2—adjusted R square. * $p < 0.05$, ** $p < 0.01$.

3. Results

Data from a total of 190 first- and second-year students attending a three-year bachelor's degree in early childhood education studies were included in the analysis. The students ranged from 19 to 44 years of age (mean 22.6 years). Here, 78.9% of participants were female. Table 1 gives an overview of the descriptive statistics of the data in addition to the correlation between the variables. The bivariate correlation (Pearsons' r) between the independent variables and professional identity ranged from 0.05 for performance climate to 0.41 for academic self-efficacy (Table 2).

A multiple linear regression revealed that the chosen model, which includes mastery climate, performance climate, interacting with professors, and academic self-efficacy, was found to explain 23.1% of the total variance in professional identity (Table 3; R^2—0.23, $p < 0.001$). The strongest predictor in the model was academic self-efficacy (β = 0.32, $p < 0.001$), followed by mastery learning orientation (β = 0.24, $p < 0.01$) and performance learning orientation (β = 0.16, $p < 0.05$).

4. Discussion

The present study sought to investigate the predictive value of learning climate, interacting with professors and academic self-efficacy in relation to professional identity. The analysis found academic self-efficacy, mastery climate and performance climate to be unique contributors to the variation in professional identity for first- and second-year early childhood teacher students, explaining 23.1% of the variation in professional identity.

Academic self-efficacy was found to be the strongest single contributor to the model. The significant influence of this variable was not surprising, taking into consideration previous research [31,35]. Even though no similar studies were found to explore professional identity in early childhood teacher students, it is well documented that students with high academic self-efficacy in other education programs are confident in their ability to meet academic requirements, plan and organize their education and avoid distractions, correlating positively with academic performance [30,35,39–41]. As well as creating a sense of competence, academic self-efficacy may increase the students' belief that they can cope with their future career, increase their perception of suitability for the profession, and, as such, contribute to heightened professional identity [11]. Through high academic self-efficacy,

students in early childhood education studies may boost their confidence in mastering academic subjects [35], consequently growing their professional identity.

Furthermore, the results show that mastery climate was positively associated with professional identity. The importance of psychological climate is well documented [17,27,41]. More specifically, a mastery-oriented climate focusing on mastering, improving, and learning, where the demonstration of one's ability is self-referenced [16], fosters a higher intrinsic motivation for learning, more effective cognitive learning strategies, and less anxiety in the learning environment [17,27]. Thus, a mastery-oriented climate will contribute to increased academic performance and students' belief in their ability to become competent early childhood teachers, and thereby strengthen their professional identity. Research has identified that a learning environment that aids learning about a subject and the profession in a supportive environment is of significance for the development of professional identity [3,42]. Hence, a supportive environment promotes an open mind through different opinions and ways of thinking, wherein students feel able- and are allowed to interact and perceive that their contributions are valued. This component is probably more noticeable in a mastery-oriented climate, and can explain the relationship between mastery climate and professional identity.

In contrast, a performance-oriented learning climate where the focus is on ability, grades, competition among students, and sorting students into ability groups was initially assumed to have an opposite (i.e., negative) association with students' professional identity. In the bivariate correlation analysis, there was no significant association between performance climate and professional identity (see Table 1). In the multiple linear regression, there was, however, a statistically significant positive effect of performance climate on professional identity. Although one may argue that under some conditions, high achievers could benefit from a performance-oriented climate [27] and consequently increase their professional identity, we suspect that the present finding may be a case of a suppression situation [43,44]. Based on the pattern of intercorrelation in the independent variables in this study, and the non-existent bivariate correlation between performance climate and professional identity, we encourage future studies to further examine the relationship between performance climate and professional identity.

In a present study, the variable interacting with professors was not found to make a unique contribution in relation to professional identity. These findings are somewhat surprising, as they differ from previous research, which indicates social support from significant others, including professors, to be one of several core factors that positively influence occupational development and professional identity in an educational context [7,8,10]. However, findings from the correlation analysis show that the variable interacting with professors is positively associated with both mastery climate and academic self-efficacy. Thus, the professor's help, support and interaction may primarily be related to teaching subjects and promoting a growth-oriented learning environment, and thereby not directly contributing to professional identity, but rather indirectly through efficacy and learning climate. However, grounded in a social identity theoretical perspective [45] we can argue that university professors are not representative of the early childhood profession per se, but of their specialized academic expertise, and for that reason they are in a somewhat marginal position in relation to representing and develop students' early childhood teacher professional identity. However, given most of the current literature indicating the importance of university educators' roles in facilitating the development of students' professional identities, there is a need to further investigate the influence of the professor's role, aiming at encompassing a wide range of dimensions of the teacher's role, including that of the teacher/mentor, in practicum in early childhood education.

4.1. Methodological Discussion

The main weakness of the present study is the cross-sectional study design, as the development of professional identity is said to be a continuous process [1]. We need to consider this aspect of professional identity when interpreting the presented data, as we

can only say something about an association between the chosen variables at a specific time in the students' education, not the association between them over time. Furthermore, as the development of professional identity is a continuous process, the inclusion of students from two different timepoints of their bachelor's degree (first and second year) may have led to the inclusion of students in different stages of their professional identity development, which in turn may affect their answers. However, the sample size obtained in the present study together with a high answering percentage is seen to strengthen the study design. Furthermore, the different variables were measured using a questionnaire developed using established sets of questions for each of the chosen variables [1,19,37,38]. However, there are also some limitations in the present study that we would like to address.

4.2. Implications

This study brings further knowledge into the field of professional identity among early childhood teacher students, which has been warranted and which is lacking [12–14]. Our findings contribute to getting a better understanding of the support that these students need to form a professional identity. Based on our results, the importance of professors facilitating an environment that promotes students' academic self-efficacy, mastery and intellectual development is profound. Furthermore, it seems to be of importance to stimulate a mastery-oriented climate, giving students time to conduct learning tasks, in addition to strengthening the connection and interaction between students and professors. However, this assumes the presence of a caring and constructive atmosphere. Examples of learning tasks that have been found to be key in the development of professional identity in early childhood teacher education studies could be varying degrees of academic writing, such as writing together with colleagues/co-students, writing for documentation or planning purposes, writing for communication with parents, and similar forms of writing [46].

The present study was cross-sectional and does not necessarily say anything about what factors predict the process of developing a professional identity. According to Mockler [47], any teacher's professional identity is "formed and re-formed constantly over the course of a career and mediated by a complex interplay of personal, professional, and political dimensions of teachers' lives" (p. 518). As the development of professional identity is a continuous process, there is a need to further investigate how the chosen variables investigated in this study predict the development of professional identity over time, and whether the association between the chosen variables and professional identity changes during early childhood teacher education.

Additionally, in forming professional identity, Lamote and Engels [10] distinguish between biographical factors, knowledge and learning environment provided in the formal education program, and experience in practicum in early childhood education. Hence, examining the impact of different learning environments such as the formal school environment and practice, in addition to addressing the association between professional identity and a broader meaning of significant others, such as co-students and teachers from the practice field instead of solely professors/teachers, would be of interest. Furthermore, the impact professional identity may have on study effort, learning and professional practise as early childhood teachers is another area recommended for further exploration.

Furthermore, research from various contexts such as school, health and social work have found associations between professional identity and positive outcomes in several work-related aspects, for instance, increased motivation, work engagement, willingness to cooperate, efficacy, professionalism, occupational development, success, and job satisfaction [7–9]. As the present study was conducted within an educational setting, it would be of interest to investigate the association between early childhood teacher students' professional identity and its subsequent impact on future work-related aspects, such as internalizing knowledge, skills, attitudes, and values that are characteristic to members of the profession, in addition to motivation and engagement in the profession.

5. Conclusions

The present study aimed at investigating the predictive value of mastery- and performance-oriented climates, in interaction with professors and academic self-efficacy, for professional identity. We found that academic self-efficacy, mastery and performance climate each make unique contributions to professional identity, though academic self-efficacy was found to make the largest unique contribution. Furthermore, interacting with professors was not found to make a unique contribution in relation to professional identity. From an educational perspective, the results are interesting as they seem to indicate that academic self-efficacy in particular, but also mastery climate, may be of high importance for the development of professional identity. However, interacting with professors was not a significant contributor to professional development; this indicates the importance of professors facilitating an environment that promotes students' academic self-efficacy in addition to promoting mastery and intellectual development. However, based on the lack of research on professional identity among early childhood teacher students, and educators' perceptions of their professionality as multi-dimensional and complex [48], further research is warranted.

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