The Development of Indonesian Accounting Teacher Professional Identity Measurement: An Exploratory Factor Analysis

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Abstract: Measuring accounting teachers' professional identity is significant to do as an alternative to measure the professionalism of accounting teachers in Indonesia based on their professional identity. This research was conducted in two stages of exploratory factor analysis involving 150 accounting teachers as sample in each stage. The data were collected in collaboration with an accounting teacher organization, comprising the Accounting Subject Teacher Deliberation (MGMP) in Central Java through a questionnaire. Data analysis was divided into several steps including face validity and content validity, inter-item correlation matrix, and exploratory factor analysis. The results showed that 23 question items encompassed five components of accounting teacher professional identity; Cultural Knowledge (pedagogical cultural identity), Blending (accommodating students' purposes for school in the learning objectives), Identity Experiencing (by the experience of working life in the past, present, and individual expectations in the future in accounting work setting), Inter-Personal Skill, and Active in Professional Communities. The scale development requires continuous development tailing various new findings in the teacher professional identity and accountant professional identity.

Keywords: *Accounting teacher, measurement, professional identity, scale.*

Introduction

The concept of identity has gained the experts' attention in various fields, especially in the meaning of identity. The concept of identity that continues to develop from time to time (Jaspal & Breakwell, 2014) is part of the assimilation, accommodation, and evaluation process (Schwartz et al., 2011; Vignoles et al., 2002). The meaning of identity continuing to evolve provides space for the development and formation process of identity in certain professional groups and communities, such as nurses and teachers (Goodolf & Godfrey, 2020; Schaap et al., 2021).

Various changes prevailed in various sectors have caused the definition of identity to continue to evolve according to developments (Jaspal & Breakwell, 2014) such as technology and 21st-century competence. Identity is one's explicit and implicit response in the question of "who am I?" or "who you are", both individually and collectively in particular situations (Schwartz et al., 2011). An identity is a set of the meaning of a person regarding his role in the social structure that he/she lives and interacts with the society, in particular, situations (Stryker,1980, as cited in Stets & Serpe, 2013). However, the meaning of identity is always related to a set of meaning that defines a person's role in a profession/one's

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position in a particular community group (Burke & Stets, 2009), for instance, a professional identity as a teacher, nurse, doctor, and various other professions.

Professional identity is a topic that has lured education observers, especially in the teacher professional development (Gibson et al., 2010; Lentillon-Kaestner et al., 2018) because this aspect frequently escapes the stakeholders' attention in preparing teacher professional development programs (Hubbard, 2018). Defining a professional identity is strongly challenging (Beauchamp & Thomas, 2009) due to the clarity problem of identity's meaning (Mockler & Sachs, 2011) and an ever-evolving meaning that involves numerous sub-identities within (Akkerman & Meijer, 2011; Avidov-Ungar & Forkosh-Baruch, 2018; Hubbard, 2018). However, the meaning of professional identity can be narrowed to a particular job context. Therefore, the meaning of professional identity and the components therein may differ from one particular professional to another.

In the context of the teaching profession, the professional identity formation emerges in three phases, namely pre-service (Ballantyne & Zhukov, 2017; Hong, 2010; Timoštšuk & Ugaste, 2010; Tsybulsky & Muchnik-Rozanov, 2019), beginner (Connolly et al., 2018; Hong, 2010; Thomas & Beauchamp, 2011), and experienced teacher (Arvaja, 2016; Colliander, 2018). During their time as pre-service teachers, the professional identity formation as a teacher is instituted once they are studying in class and their activities in the various communities they participated in, such as student organizations run by universities that promote self-governance (Fuadi et al., 2021). Moreover, study/playgroups are directly or indirectly able to develop their social and personality competencies. It engages many academic, non-academic, internal, and external factors of pre-service teachers (Hubbard, 2018). During their time as beginning teachers, teacher professional identity will be instilled with internal input in the form of distinction between the theories obtained on campus and the facts discovered in the field. Various contextual factors that are highly dependent in a particular school are influenced by various factors such as culture that allows what is learned on educational setting has not yet accommodated the existing knowledge in the field. When becoming an experienced teacher, the teacher professional identity is more likely shaped due to numerous factors such as experience, relationships with colleagues, relationships with other agencies, and personal and institutional problems (Brown & Heck, 2018). Meanwhile, the knowledge gained during college no longer gives a significant effect.

Research on teacher professional identity in several subject teachers has been conducted, for instance, studies on mathematics teachers (Bjuland et al., 2012; Botha & Onwu, 2013; Heyd-metzuyanim, 2019), English (Leigh, 2019; Rubin & Land, 2017), and music (Ballantyne & Zhukov, 2017). The results of this study indicated different components of professional identity, including the adjustment process for mathematics teachers to the prevailing school culture (Losano et al., 2018). Based on aforementioned examples, it appears that despite the profession is similar, which is a teacher, each subject teacher brings different professional identity. Therefore, the professional identity of accounting teacher is certainly unalike teachers of other subjects.

The identity concept of accounting teacher professional is a conceptual combination of the professional accountant identity with the professional identity of teachers (Syah et al., 2020). This concept development is based on the fact that a person has multiple identities in his life. Hence, as an accounting teacher, two main identities shall be possessed; the identity as a teacher and an accountant. The compound of the two professional identities from these two professions is the initial step in shaping the accounting teacher professional identity concept.

Studies in teacher professional identity have developed into a measurement scale to measure the mastery level of professional identity according to the particular professional identity standards. It is according to identity theory in which the theory-building process requires an identity standard that is utilized as a comparator with the identity that a person currently has (Brown & Heck, 2018; Burke & Stets, 2009). The identity standard is reflected in indicators that are statistically proven to be major components of professional identity.

In the teaching profession, several factors account for the standard of professional identity. The professional identity of pre-service teachers in China is represented by three factors; intrinsic value identity, extrinsic value identity, and volitional behavior identity (Zhang et al., 2016). In the intrinsic value identity, there were seven valid question items. In the extrinsic value identity, three question items were found valid, while in the volitional behavior identity had five valid question items. Besides, they are still pre-service teachers, (Hanna et al., 2020) evaluating several instruments of professional identity, which in essence there are four main factors, namely motivation, self-image, self-efficacy, and task perception.

Among several measurements of professional identity, there is no specific measurement of professional identity in the accounting teacher profession. This study focuses on the development of a teacher professional identity measurement scale, specifically for accounting teachers in Indonesia. Eleven ATPI factors were tested using exploratory factor analysis, i.e., High commitment in teaching, Cultural Knowledge (pedagogical cultural identity), Active Learner, Communicative, Coordinate and adapt quickly, Replacing, Blending, Privileging, Active in Professional Communities, Identity Ranking, and Identity Experiencing (Syah et al., 2020).

Literature Review

A Brief of Identity Theory Meaning

Understanding identity theory can be achieved through four perspectives, i.e., history, philosophy, psychology/narrative account, and biology (Foster & Herring, 2017). Historically, human beings identified identity through personal pronouns written in religious books. Philosophically, identity is associated with an ethical concern wherein a condition in social relations, an action that aims to recognize someone who orders a certain task, provides corrections, and properly distributes rights and obligations is an essential issue. Psychologically, events that are performed within a social framework will create "who I am" or "me", which is the connection between memory, intention, belief/purpose/desire, and resemblance in character to other group members. Meanwhile, given the biological perspective, every individual has multiple identities, such as a father who is also a husband, teacher, researcher, musician, member of a hobby group, and so on. Considering the use of the pronouns "I" is not appropriate to describe identity. This perspective regards the continuity of one's identity is part of human life. Obviously, it will be divided on each identity that is possessed.

Multiple Identities

Understanding identity in a particular job does not necessarily grasp that everyone possesses identity, which is part of his life, and an identity is formed due to the social interactions of a particular group he is in. Everyone has multiple identities in his life and is related to their performance in society (Mathe & Hapazari, 2019; Syah et al., 2020). Burke and Stets (2009) mentioned that there are two types of multiple identities, including within-person and multiple identities in the context of the social situations they experience (across persons).

In the context of identities within persons, an accounting teacher can become a teacher, accountant, mother/father, friend, co-worker, and so on (Syah et al., 2020). Moreover, a teacher has had multiple identities since he was a teenager such as a daughter in a family, a church singer, a volleyball player, and a student. (Gallardo, 2019). In understanding multiple identities within-person, there is a hierarchical control system that is part of controlling one's self-perception. If an accounting teacher is a wife simultaneously, the two identities have different standards that must be met by the teacher according to the standards and perceptions she has. The behavior exhibited should be able to show the achievement of standards for all identities that are possessed.

Accounting Teacher Professional Identity (ATPI)

Teacher professional identity is one of the interesting topics for education researcher (Gibson et al., 2010; Lentillon-Kaestner et al., 2018), in which this aspect is not too concerned with teacher professional development (Hubbard, 2018). Researchers initially attempted to identify the meaning of professional identity for various work types. Therefore, finding the right definition is one of the topics that is frequently discussed (Bourke et al., 2018; Nolan & Molla, 2017). Most academics seek definitions, influencing factors, and the internal and external aspects of teachers on professional identity. Whereas in the context of a teacher, a teacher professional identity is a form of professionalism formed from self-conceptualization (what the teaching profession is, how other people discern the teaching profession, and what should be done as a teacher) and has high commitment, positive revolution, beliefs, and value to improve the standard of living of students and the ability as educators (Beijaard et al., 2004; Gholami et al., 2021; Steadman et al., 2018)

The formation of professional teacher identity develops incessantly through three stages, i.e., stage of becoming pre-service teachers, stage of beginning teachers, and stage of experienced teachers. It is essential to establish the identity of a teacher from the stage of pre-service teacher (Timoštšuk & Ugaste, 2010). The professional identity formation in pre-service teachers consists of three stages, namely the pseudo stage (candidates view the teaching profession as it provides great opportunities for work), the destructive stage (various important events in the educational process), and the moral stage (moral as a teacher is formed during direct practice in school) (Gholami et al., 2021). After graduating from university, as a beginning teacher, the identity of a new teacher develops from being prepared to face new challenges to adapt to new settings in any condition as a teacher (Thomas & Beauchamp, 2011). At this stage, the identity formed during education is still dominant and conforms to the standards applied in the school. Meanwhile, when one becomes an experienced teacher, the identity of a professional teacher is formed as a manager, understands the teaching profession as a professional job, and adapts to various conditions (Farrell, 2011). At this stage, teachers begin to forget their professional identities when they become students and professional identities are created from experiences, relationships with colleagues, the world of business/institutions followed, as well as personal and interpersonal problems (Brown & Heck, 2018).

Accounting teachers are those who teach accounting at the vocational high school level, therefore in this position, the accounting teachers have two main identities; as a teacher and an accountant. Guo (2018) confirmed that there are two main identities as an accountant, namely identity ranking and identity experiencing. Identity ranking is an accountant's ability compared to others in the context of social status, exam results, and work experience. Meanwhile, identity experiencing is experiences that have been encountered while pursuing the accounting profession. The professional accountant identity formation begins when involving prospective accountants to become members of professional accountants (Hamilton, 2013). This initial process is crucial to absorb knowledge from seniors. The role of seniors for

junior accountants is fairly significant to form the professional identity of young accountants (Brouard et al., 2017). Meanwhile, one of the important professional identities for accountants is the ability to solve problems called the "fix-it" identity (Dellaportas et al., 2019).

Methodology

Participant and Procedure

This study involved several experts and practitioners to assess face validity and content validity. Experts in the field of accounting education were selected from Universitas Pendidikan Indonesia and Universitas Negeri Yogyakarta. Meanwhile, practitioners were chosen from accounting teachers who have been professionally certified and are members of accounting teacher organizations, namely the head of the accounting subject teacher deliberation (MGMP) in provinces and regencies/cities. The experts are detailed in Table 1.

Table 1. List of experts in face and content validity

No		Occupation	Role
1	Expert 1	1. Lecturer in Universitas Negeri Yogyakarta 2. Expert member of education ministry in teacher education of accounting teacher 3. Expert in teacher professional education	Qualitative review of the instrument
2	Expert 2	1. Lecturer in Universitas Pendidikan Indonesia 2. Expert member of education ministry in teacher education of accounting teacher	Qualitative review of the instrument
3	Expert 3	1. Senior accounting teacher at SMK N 1 Sragen 2. Chairman of the MGMP of Central Java Province	Face and Content Validity
4	Expert 4	1. Senior accounting teacher at SMK N 2 Semarang 2. Chairman of the MGMP of Semarang City	Face and Content Validity
5	Expert 5	1. Senior accounting teacher at SMK N 1 Salatiga 2. Chairman of the MGMP of Salatiga City	Face and Content Validity

In addition to these experts, eight non-experts who are accounting teachers with alike characteristics as the prospective respondents, namely accounting teachers in Central Java, were involved in content validity analysis. The total population of accounting teachers in Central Java was 1747 accounting teachers spread across 34 regencies/cities. Hair et al. (2020) recommended that the minimum amount for the exploratory factor analysis test is 100 or more. Therefore, from the total population, 150 teachers were selected using the cluster random sampling technique for each stage (there are two stages of EFA analysis).

The research procedure was conducted in several steps, i.e., building instruments based on research findings regarding teacher professional identity and accountant identity, asking experts to review each question qualitatively, conducting face and content validity with experts and non-expert accounting teachers, analyzing inter-item correlation on data, and testing using exploratory factor analysis (EFA).

Accounting Teacher Professional Identity Components

Previous research has widely examined the definition and components of professional identity in pre-service teachers, beginning teachers, and experienced teachers. Besides, the search results also found several components of professional identity in the accounting profession. In this study, the accounting teacher professional identity is a combination of the professional identity of senior teachers and accountants. Therefore, this study selected the components of identity discovered by previous studies in the two professions then tested whether these components are factors of accounting teacher professional identity statistically.

Table 2. Components of Accounting Teacher Professional Identity

Components	Source
High Commitment	(Stets & Serpe, 2013)
Cultural Knowledge	(Burgess, 2016)
Active Learner	(Yuan, 2016)
Communicative	(Yuan, 2016)
Coordinate and adapt quickly	(Colliander, 2018)
Replacing, Blending, Privileging	(Brown & Heck, 2018)
Active in Professional Communities	(Devos, 2010)
Identity Ranking	(Guo, 2018)
Identity Experiencing	(Guo, 2018)

Data analysis procedure

The first step before performing the Exploratory Factor Analysis (EFA) is to test the inter-item correlation matrix of each question of sub-variables. The suggested correlation among the inter-item correlation matrix is greater than 0.3 (Yong & Pearce, 2013). Following that, EFA analysis can be completed in four steps as follows (Hair et al., 2020):

1) Bartlett's Test of Sphericity ($p < 0.05$)

2) Kaiser-Mayer-Olkin (KMO) measure (> 0.05)

3) Eigenvalue >1

4) Items with factor loading >0.5 will be retained.

Findings/ Results

Face Validity and Content Validity

Before conducting a series of exploratory factor analysis tests. The instruments built are tested by experts and non-experts in terms of face validity and content validity. Face validity implies the extent to which examinees believe the instrument is measuring what it is supposed to measure (Ary et al., 2012). In conducting the face validity test, researchers used the Cohen Kappa Index with the criteria in Table 1.3.

Table 3. Kappa Score Agreement

Kappa	Agreement
< 0	Poor
0.01 – 0.20	Slight
0.21 – 0.40	Fair
0.41 – 0.60	Moderate
0.61 – 0.80	Substantial
0.81 – 0.99	Almost Perfect
1	Perfect

Source: (Lam et al., 2018)

The results of face validity are as follows:

Table 4. Cohen Kappa Score

Symmetric Measures				
	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement Kappa	0.803	0.131	4.096	0
N of Valid Cases	25			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

These results indicate that the Kappa value obtained a value of 0.803 (substantial), meaning the two experts agreed on the review that the instrument has a good level of readability and meaning.
Content validity consists of two phases. The first is the qualitative review instrument by the experts while the second is the statistic test using Content Validity Index (CVI) with a 4-point or 3-point ordinal scale (Ary et al., 2012; Taherdoost, 2018). Table 5 displays the results of the qualitative reviews of experts and the CVI scores of non-experts.

Table 5. Qualitative *Review from Experts*

No	Experts	Comments
1	Expert 1	1. Good word accuracy 2. Some questions contain more than one aspect, need to be separated. In addition, some stray far from the indicator. 3. All questions are important to be asked to accounting teachers 4. There should be more than two question items in one indicator so that in the future if there are things that are not valid and reliable can be used to measure indicators and represent aspects that should be measured.
2	Expert 2	1. Word accuracy is good but too long 2. Please make the sentence in the standard format, a little bit confusing 3. All questions are essential 4. Remove words that lead to (always, capable, etc.) also discard ambiguous words "and", adjust the statement items with the indicators you created.

Based on the reviews from the experts, several changes were made, including increasing the number of questions to a minimum of 5, revising some questions that were not following the intended meaning, and omitting words 'always', 'capable', etc. Furthermore, Table 6. presents the results of the Coefficient Validity Ratio (CVR) with six panellists as assessors.

Table 6. CVR Results

ITEM	CVR	Cut-off	Interpretation
ITEM1	0,75	0.75	Valid
ITEM2	1	0.75	Valid
ITEM3	0,75	0.75	Valid
ITEM4	0,75	0.75	Valid
ITEM5	-0,25	0.75	Invalid
ITEM6	0,5	0.75	Invalid
ITEM7	0,5	0.75	Invalid
ITEM8	0,75	0.75	Valid
ITEM9	0,75	0.75	Valid
ITEM10	0,75	0.75	Valid
ITEM11	0,75	0.75	Valid
ITEM12	0,75	0.75	Valid
ITEM13	0,75	0.75	Valid
ITEM14	0,75	0.75	Valid
ITEM15	0,25	0.75	Invalid
ITEM16	0,5	0.75	Invalid
ITEM17	0,75	0.75	Valid
ITEM18	0,25	0.75	Invalid
ITEM19	0,5	0.75	Invalid
ITEM20	0	0.75	Invalid
ITEM21	0,75	0.75	Valid
ITEM22	1	0.75	Valid
ITEM23	0,25	0.75	Invalid
ITEM24	0,75	0.75	Valid
ITEM25	1	0.75	Valid

Based on these results, the number of invalid question items was deleted/replaced and the number of questions at least five for each component was added.

Table 7. Number of items in the Instrument for EFA First Version

Component	Number of questions
High commitment to teaching	Item 1 – Item 5
Cultural Knowledge (pedagogical cultural identity	Item 6 – Item 10
Active Learner	Item 11 – Item 15
Communicative	Item 16 – Item 20
Coordinate and adapt quickly	Item 21 – Item 25
Replacing	Item 26 – Item 30
Blending	Item 31 – Item 35
Privileging	Item 36 – Item 40
Active in Professional Communities	Item 41 – Item 45
Identity Ranking	Item 46 – Item 50
Identity Experiencing	Item 51 – Item 55

The number of question items for each component was five questions at minimum according to experts' advices. Several questions were replaced with other questions, particularly those that were declared invalid through both the qualitative review and the quantitative from eight non-expert panellists.

EFA Result of First Version of Instruments

In this study, EFA was conducted in two stages. The first stage was to examine the items for each component shown in Table 7., which is a factor for accounting teacher professional identity. While in the second stage, the results of the first stage revised the component names and question items, and were re-analyzed with fresh data and new factor naming. In this study, the researchers presented a summary of the results of the first stage and details of the test results of the second stage. The results of the EFA first cycle for the former version of the ATPI instrument with the components according to Table 8. are as follows:

Table 8. Rotated Component Matrix First EFA

	Component						
	1	**2**	**3**	**4**	**5**	**6**	**7**
ITEM19	.817						
ITEM18	.706						
ITEM17	.646						
ITEM21	.617						
ITEM24	.615						
ITEM25	.614						
ITEM20	.594						
ITEM42	.534						
ITEM52		.765					
ITEM53		.731					
ITEM54		.708					
ITEM48		.621					
ITEM51		.601					
ITEM39		.558					
ITEM55		.558					
ITEM40							
ITEM6			.777				
ITEM7			.753				
ITEM9			.506				
ITEM4							
ITEM3							
ITEM8							
ITEM10							
ITEM2				.676			
ITEM5				.611			
ITEM41							
ITEM23							

Table 8. Cıntinued

	Component						
	1	**2**	**3**	**4**	**5**	**6**	**7**
TEM38					.799		
ITEM37					.718		
ITEM44							
ITEM46							
ITEM33						.632	
ITEM35						.581	
ITEM34							
ITEM43							.841
ITEM45							

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 10 iterations.

These results signify that 7 components had a loading factor of more than 0.5. Nevertheless, several factors only obtained two items with factor loading that satisfied the requirements and, even, some data only yielded one. Therefore, it is necessary to rearrange the question items from several components that were combined and added to the question items, which in the factor only had one or two questions. Table 9. presents the results of the naming and adding those question items so that each factor had a minimum of five question items:

Table 9. Naming the factor for the second EFA and Added Items

No	Items	Initial factors Names	New Factor Names	Items Added
1.	17,18, 19 20 21, 24, 25, 42	Communicative Coordinate and adapt quickly	Human relationship	0
2	39 48 51, 52, 53, 54, 55	Privileging Identity Ranking Identity Experiencing	Identity Experiencing	0
3	6, 7, 9	Cultural Knowledge (pedagogical cultural identity)	Cultural Knowledge (pedagogical cultural identity)	2
4	2, 5	High commitment to teaching	High commitment to teaching	3
5	37, 38	Privileging	Privileging	3
6	33,35	Blending	Blending	3
7	43	Active in Professional Communities	Active in Professional Communities	4

Inter-item correlation matrix second version of the instrument

Inter-item correlation analysis is a crucial analysis to test whether the series of test items used are interrelated or otherwise. It examines the extent to which a set of items tests equal content (Cohen & Swerdlik, 2005). In this stage, besides considering the inter-item correlations matrix on each item in the component, the researchers also considered the value of Cronbach's Alpha if the item was omitted. Despite the value of the inter-item correlation matrix on certain items indicated a value of less than 0.3, it is imperative to consider the impact on Cronbach's alpha value. If the item is deleted, Cronbach's Alpha value will drop, then the item is retained. The decision to delete these items will be made in the EFA process if it obtains a loading factor of less than 0.5.

Table 10. Summary of the results of the inter-items correlation matrix

No	Factor	Result
1	Human relationship	Even though IPS seven had a correlation below 0.3 toward some items. The Cronbach's Alpha was decreased if the item was deleted. Hence, the IPS 7 item was retained
2	Identity Experiencing	Even though IE5 had a correlation below 0.3 toward IE3. The Cronbach's Alpha was decreased if the item was deleted. Therefore, IE3 item was retained
3	Cultural Knowledge (pedagogical cultural identity)	All items had an inter-item correlation above 0.3 so that all items were eligible for EFA analysis
4	High commitment to teaching	All items had an inter-item correlation above 0.3 so that all items were eligible for EFA analysis
5	Privileging	Even though P1 had a correlation below 0.3 toward P3. The Cronbach's Alpha decreased if the item was deleted. Hence, item P3 was retained
6	Blending	All items had an inter-item correlation above 0.3 so that all items were eligible for EFA analysis
7	Active in Professional Communities	Item 42 was eliminated for EFA because the inter-item correlation score was below 0.3 and if the item was deleted the Cronbach's Alpha value increased.

Based on the results of the inter-items correlation matrix analysis, there were 39 question items analyzed for EFA.

Table 11. Items for Second Stage EFA

No	Factors	Items
1.	Inter-Personal Skill	IPS1, IPS2, IPS3, IPS4, IPS5, IPS6, IPS7
2.	Identity Experiencing	IE1, IE2, IE3, IE4, IE5, IE6
3.	Cultural Knowledge	CK1, CK2, CK3, CK4, CK5, CK6
4.	High Commitment in Teaching	HC1, HC2, HC3, HC4, HC5
5.	Privileging	P1, P2, P3, P4, P5
6.	Blending	B1, B2, B3, B4, B5
7.	Active in Professional Communities	ITEM41, ITEM43, ITEM 44, ITEM 45

In this second stage, there are seven ATPI factors to be tested. Each factor has more than or equal to 5 items. These factors are Inter-Personal Skill (7 items), Identity experiencing (6 items), Cultural knowledge (6 items), high commitment in teaching (5 items), Privileging (5 items), Blending (5 items), and active in professional communities (5 items).

Results of Exploratory Factor Analysis (EFA)

The results of the exploratory factor analysis (EFA) for this revised version of the instrument were the final results of the analysis. The analysis referred to several criteria, namely Bartlett's Test of Sphericity ($p < 0.05$) to test whether the data has a relationship pattern, the Kaiser-Mayer-Olkin (KMO) measure (> 0.05) to test the adequacy of the sample used, a factor with an Eigenvalue> 1 is the number of factors accepted, and items with a factor loading> 0.5 are declared valid items for the accounting teacher professional identity (ATPI) instrument.

a. Bartlett's Test of Sphericity dan Kaiser-Mayer-Olkin (KMO)

The Bartlett's Test of Sphericity dan Kaiser-Mayer-Olkin (KMO) result is described as follow:

Table 12. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.882
Bartlett's Test of Sphericity	Approx. Chi-Square	3141.451
	df	741
	Sig.	.000

The results of the analysis using SPSS software show that Bartlett's Test of Sphericity value was 0.000, implying that the items in the instrument had a certain relationship pattern. Meanwhile, the KMO value of number 0.882 denotes that the number of samples used was sufficient for EFA analysis.

b. Eigenvalue

The eigenvalue measures how much variance of the observed variable is explained by a factor. The process is completed by eliminating items that have a leading factor of 0.5 and a factor of less than three items. The results in the scree plot and total variance are explained.
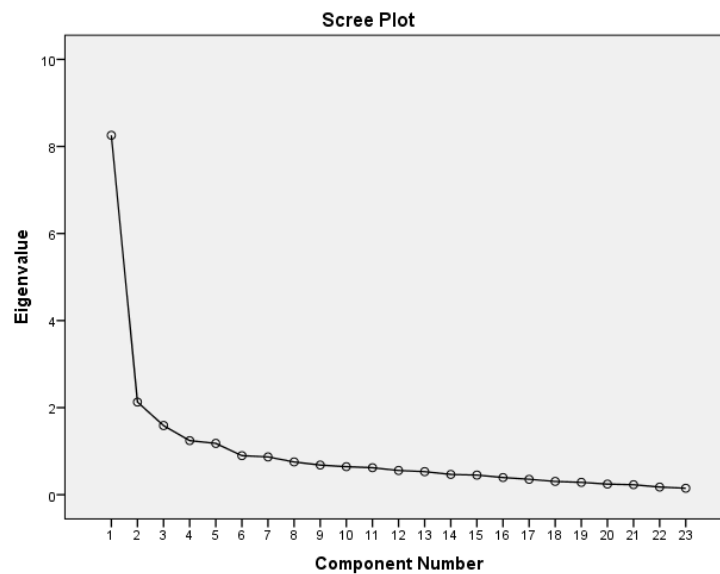

Figure 1. Scree plot

Figure 1 visually describes the number of components formed from the EFA results. The graph shows an initial eigenvalue that is more than 1.0, totaling five components. However, to ensure this, it is necessary to analyze the total variance explained to avoid misinterpretation.

Table 13. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.256	35.894	35.894	8.256	35.894	35.894	4.097	17.815	17.815
2	2.128	9.254	45.149	2.128	9.254	45.149	2.946	12.809	30.624
3	1.589	6.908	52.057	1.589	6.908	52.057	2.932	12.747	43.372
4	1.243	5.403	57.461	1.243	5.403	57.461	2.279	9.911	53.282
5	1.180	5.130	62.590	1.180	5.130	62.590	2.141	9.308	62.590
6	.898	3.903	66.493						
7	.868	3.773	70.266						
8	.753	3.273	73.539						
9	.682	2.965	76.504						
10	.643	2.797	79.301						
11	.621	2.699	81.999						
12	.557	2.421	84.420						
13	.530	2.303	86.723						
14	.466	2.026	88.749						
15	.451	1.962	90.712						
16	.395	1.715	92.427						
17	.355	1.543	93.970						
18	.305	1.325	95.295						
19	.284	1.234	96.529						
20	.244	1.062	97.591						
21	.230	.998	98.589						
22	.176	.764	99.353						
23	.149	.647	100.000						

Extraction Method: Principal Component Analysis.

The total variance explained scree plot results show that five factors have an initial eigenvalue of more than 1.0, i.e., 8.256 (component 1), 2.128 (component 2), 1.589 (component 3), 1.243 (component 4), and 1.180 (component 5). These components explained 62.59% of the accounting teacher professional identity variable.

c. Items loading factor

The loading factor value can be determined from the rotated component matrix. All of the items scattered in these five factors yielded a loading factor of >0.50.

Table 14. Rotated Component Matrix

	Component				
	1	**2**	**3**	**4**	**5**
CK4	.802				
CK3	.774				
CK1	.770				
CK2	.706				
CK5	.614				
CK6	.614				
B3		.753			
B5		.719			
B4		.711			
B1		.603			
B2		.558			
IE4			.763		
IE3			.660		
IE1			.632		
IE2			.628		
IPS5				.753	
IPS6				.635	
IPS7				.624	
IPS4				.620	
ITEM41					.775
ITEM43					.742
ITEM44					.733
ITEM45					.623

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

The rotated component matrix table shows that 23 factors have a loading value of more than 5.0. In addition, the items cluster on the same factor. These results indicate that these items have the same pattern on each factor.

d. Cronbach's Alpha final factors

Cronbach's alpha value is used to determine the reliability of an instrument. Hair et al. (2020) stated that the rule of thumb Cronbach's alpha is >0.70. Even so, a value >0.60 is sufficient to declare a reliable instrument.

Table 15. Cronbach's Alpha Final Instrument ATPI

Factors	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	Interpretation
Cultural Knowledge	0.91	0.911	6	Very good reliability
Blending	0.808	0.812	5	Very good reliability
Identity Experiencing	0.789	0.798	4	Good Reliability
Inter-personal skill	0.726	0.73	4	Good Reliability
Active in Professional Communities	0.695	0.701	4	Moderate Reliability
All Factors	0.872	0.885	23	Very good reliability

Table 15 describes the value of Cronbach's Alpha on the final ATPI instrument from the EFA results. The results show that all instruments on each component have good reliability. In addition, the total reliability of the instrument shows the number 0.872, which means that the ATPI instrument that has been built has excellent reliability.

e. Final instrument of ATPI

Based on the results of the exploratory factor analysis, it shows that several items in the factor were eliminated because they had a loading factor of 0.5, while the two factors were removed/deleted, namely high commitment in teaching and privileging in which all items had a loading factor of less than 0.50 or items that fit the criteria were less than three.

Table 16. Summary of EFA Results

No	Factors	Items	Final Items after EFA
1.	Inter-Personal Skill	IPS1, IPS2, IPS3, IPS4, IPS5, IPS6, IPS7	IPS4, IPS5, IPS6, IPS7
2.	Identity Experiencing	IE1, IE2, IE3, IE4, IE5, IE6	IE1, IE2, IE3, IE4
3.	Cultural Knowledge	CK1, CK2, CK3, CK4, CK5, CK6	CK1, CK2, CK3, CK4, CK5, CK6
4.	High Commitment in Teaching	HC1, HC2, HC3, HC4, HC5	All items were deleted
5.	Privileging	P1, P2, P3, P4, P5	All items were deleted
6.	Blending	B1, B2, B3, B4, B5	B1, B2, B3, B4, B5
7.	Active in Professional Communities	ITEM41, ITEM43, ITEM 44, ITEM 45	ITEM41, ITEM43, ITEM 44, ITEM 45

The results of the EFA analysis showed that two factors were not proven to be ATPI factors, and several items needed to be removed from the factors. Two factors that are not ATPI factors are high commitment in teaching and privilege. In contrast, the other five factors were statistically proven to be ATPI factors. The five factors are interpersonal skills (4 items), experiencing identity (4 items), cultural knowledge (6 items), blending (5 items), and active in professional communities (4 items), so that the total items are 23 items.

The instruments formed following the exploratory factor analysis process are as follows:

Table 17. Final Questions After EFA

No	Factor	Question Items
1.	Cultural Knowledge (pedagogical cultural identity)	(CK1) I combine local cultural wisdom in my interactions with students (+) (CK2) I always consider the local culture wisdom and school culture in learning (+) (CK3) I understand the customs in behaving where I teach (+) (CK4) I understand the culture/habits of teaching and learning in school (+) (CK5) I can adapt myself to the culture/ habits of teaching and learning at school (+) (CK6) I can adjust to the work culture at school (+)
2.	Blending	(B1) Combining several learning methods in one meeting is something I do a lot (+) (B2) I combine online and offline learning (+) (B3) I often use several learning media in one meeting (+) (B4) I always link theory to practice in everyday life (+) (B5) I combine accounting material with various other related sciences (+)
3.	Identity Experiencing	(IE1) My experiences have had a positive effect on accounting learning that I manage (+) (IE2) The things I am experiencing as an accounting teacher today are something I expect (+) (IE3) I always make every failure in Accounting lessons a reflection on future improvements (+) (IE4) Being a teacher is part of an extraordinary experience.
4.	Inter-Personal Skill	(IPS1) I think colleagues and students can understand what I say (+) (IPS2) I have no significant teamwork problems (+) (IPS3) I can adapt quickly (+) (IPS4) I can change the teaching style according to the character of students in certain classes (+)
5.	Active in Professional Communities	(APC1) I always participate in all activities at the Accounting Subject Teacher Deliberation (MGMP) or other educational organizations (+) (APC2) I belong to a professional accountant organization (+) (APC3) Joining professional organizations is highly essential (+) (APC4) I am willing to give all my resources and efforts to develop the professional organization that I participate in (+)

Table 21 describes the final ATPI instruments resulting from the EFA analysis. Following the results obtained, each statement is a valid statement as a result of the EFA analysis. The five factors have a total of 23 positive statements. The active in professional communities' factor code was changed from item 1, item 2, item 3, and item 4 to APC 1, APC 2, APC 3, and APC 4.

Discussion

Accounting teacher professional identity is a professional identity concept that combines the components of teacher professional identity and accountant professional identity. In this study, several components of the professional identity of teachers and accountants were tested as a result of the literature review conducted. Initially, many identities revealed were implicitly and explicitly presented by previous researchers, especially in the teaching profession. There were at least 16 studies that were used to select the identity components to be analyzed.

Even so, not all of these components were tested with various considerations, such as relevance to accounting teachers and researcher limitations. As an example, Nguyen (2016) mentioned that the identity of the teacher is Artist, Mother, Trial judges, Intercultural, Promoter, and Democrats. However, this identity is specific to the English teacher even though in certain contexts it can be used for teachers in general. Meanwhile, the professional identity component, such as being active in the professional community, can be cultivated in all teachers (Devos, 2010) which are also contained in the accountant professional identity (Brouard et al., 2017). Therefore, several components that can be implemented in accounting teachers in Indonesia were selected as per researchers' considerations.

The EFA results show that not all of the selected components are statistically proven that these components are components of accounting teacher professional identity. Of the seven components submitted, there were two components whose all items were removed from the ATPI instrument. The two components were High Commitment in Teaching and Privileging. Based on the results of previous research, high commitment in teaching is an important factor for teachers (Burke & Stets, 2009; Stets & Serpe, 2013). Interestingly, it is not the professional identity of accounting teachers in Indonesia according to the statistics. It may occur because teachers in Indonesia should not only focus on teaching but also interpersonal competence (Misbah et al., 2015), and pedagogical skills (managing classes with multiple methods) (Bangun & Iswari, 2015; Juliani et al., 2021). Therefore, having a high commitment to teaching is not the professional identity of the accounting teacher.

The corresponding circumstance happens with privileging components. Privileging is a concept where the teacher can see the students' behavior according to the context that occurs (Brown & Heck, 2018). This component was not proven as a professional identity for accounting teachers in Indonesia. It may be due to various factors, such as understanding the context of each student's behavior is quite challenging to do. With a strong multicultural setting, Indonesia contains thousands of ethnic groups. Understanding the context of the students' behavior is rather challenging. The multicultural condition can lead to identity conflicts based on self-conceptualization and teacher beliefs (Zhao et al., 2019) that differ between cultures (Maclure, 1993), which in turn can affect teacher performance (Williams et al., 2019). Therefore, assigning the privileging factor to accounting teacher professional identity in Indonesia is inappropriate.

In contrast, understanding school culture (cultural knowledge) is critical in the Indonesian context. Indonesia is a multicultural country consisting of many ethnicities and tribes scattered throughout the region. Even in a province, there are many different customs and the use of other languages. This contextual factor poses its challenges for accounting teachers who have students from various cultural backgrounds. In addition, understanding the school work culture that has been acculturated with the local community's culture is essential in developing the professional identity of accounting teachers.

The blending ability of accounting teachers in Indonesia is one of their professional identities. Blending is the ability of teachers to accommodate various learning objectives by using multiple methods and learning media. With the cultural background, ethnicity, and habits of the Indonesian people and the diverse abilities of students, the blending component is an essential factor as the professional identity of accounting teachers.

This situation certainly has logical consequences for accounting teachers in Indonesia to possess good interpersonal skills. Interpersonal skills are not only crucial to teachers but also the relationship between teachers and students. This ability will enable teachers to overcome various social problems among students, teachers and students. Teachers should be able to handle students' social and even psychological issues to achieve learning objectives. Therefore, interpersonal skills are pivotal part of teacher professional identity (Kwan & Lopez-Real, 2010).

Besides, the component of accountant professional identity, this research also consists of identity experiencing (Guo, 2018) and being active in the professional accountant organization (Brouard et al., 2017; Devos, 2010; Hamilton, 2013). The two components are statistically proven to be one of the professional identities of the accounting teacher. Although there is no evidence that a longer experience of teacher at work is associated with an increase in teacher performance (Graham et al., 2020), the experience is a significant part of forming a professional identity.

Conclusion

The formation of accounting teacher professional identity measurement is part of the development of the concept of accounting teacher professional identity, which is a combination of the teacher professional identity and accountant identity concepts. Of the many factors that have the potential to be components of ATPI, only partly were used given various considerations. Of the eleven components tested in the first stage of EFA and seven components in the second stage, five of them were statistically proven to be ATPI components with 22 question items while two of them were not part of the ATPI components in the context of Indonesian teachers. The five factors are Cultural Knowledge (pedagogical cultural identity), Blending (the accommodating students' purposes for school in the learning objectives), Identity Experiencing (by the experience of working life in the past, current, and individual expectations in the future in accounting. work), Inter-Personal Skill, and Active in Professional Communities. Nevertheless, the development of a scale in accounting teachers can continue to be developed with the findings of novel components that need to be tested statistically.

Recommendation

There are several other components of the accountant professional identity that can be tested using statistics but have not been included in this study such as public perception of the accountant profession and fix-it identity. These two components have the potential to complement the accounting teacher professional identity, which is a combination of teacher professional identity and accountants. Therefore, creating a scale for accounting teacher professional identity in the future may consider these two factors and other factors that have not been tested statistically using either exploratory factor analysis (EFA) or continued to confirmatory factor analysis (CFA).

Limitation

The focus of this research is to develop a measurement instrument for accounting teacher professional identity. The concept of teacher identity that is constructed is the result of a literature review that continues to develop. Therefore, changes may occur along with the publications of research results on teacher identity that will be able to change the concept of accounting teacher professional identity. This study does not cover all subject teachers. The indicators analyzed in the exploratory factor analysis are intended to measure the professional identity of accounting teachers in vocational schools.

Authorship Contribution Statement

Syah: Conceptualization, data analysis, writing. Janudin: Editing/ Reviewing, Supervision, data analysis. Mansor: Editing/ reviewing, Supervision, data analysis. Fuadi: Reviewing, data collection. Harsono: Supervision, data collection. Widiastuti: Data collection. Romadhoni: Data collection. Hafidah: Data collection

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