

Teacher Education Admission Criteria as Measure of Preparedness for Teaching

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Abstract

This study investigated the relationship between commonly used admission criteria, found in a one-year, post Bachelor's degree, initial, teacher education program, and the preparedness of teacher candidates in mathematics for independent teaching. The admission criteria used in this study were grade point average (GPA) and a written profile. The profile was not significantly related with either the assessment of practice teaching or preparedness. However, entering GPAs predicted only between five and 12 per cent of variance in course instructors' judgements of teacher candidates' preparedness in three of five areas: *Promote Student Learning, Critical Thinking, and Use of Technology*. Ratings of preparedness by instructors, associate teachers, and the teacher candidates themselves suggested that teacher candidates were adequately to well-prepared in all areas. This finding is possibly due to the restriction of range of GPA and overall success for all teacher candidates. Further research is needed utilizing unique approaches to draw substantive conclusions that entering GPA or ratings of applicants responses to a written profile have predictive value for successful student teaching performance. Implications for initial teacher education program admissions are discussed.

Key words: teacher education, admission criteria, teacher preparedness

Résumé

Cette étude explore le lien entre les critères d'admission couramment utilisés pour un programme de formation initiale à l'enseignement d'un an après le baccalauréat et la mesure dans laquelle les candidats sont prêts à enseigner d'une manière autonome les mathématiques. Les critères d'admission analysés dans cette étude étaient la moyenne pondérée cumulative (MPC) et un profil écrit de chaque candidat. Le profil n'était pas relié d'une manière significative à l'évaluation du stage pédagogique ou de l'état de préparation des stagiaires. Pour ce qui est des MPC des candidats, leur valeur prédictive expliquait seulement de 5 à 12 % de la variance dans les opinions des moniteurs de cours au sujet de l'état de préparation des stagiaires dans trois domaines sur cinq, à savoir la promotion de l'apprentissage des élèves, la pensée critique et l'utilisation de la technologie. Les évaluations de l'état de préparation des stagiaires par les moniteurs, les enseignants associés et les stagiaires eux-mêmes semblent indiquer que la préparation des stagiaires

était de « adéquate » à « excellente ». Ce résultat s'explique probablement par l'homogénéité des MPC des candidats et le succès global de tous les stagiaires. Il faudra d'autres recherches faisant appel à des approches pertinentes pour pouvoir conclure nettement que le MCP des candidats ou l'évaluation des réponses des candidats à un questionnaire écrit relatif à leur profil a une valeur prédictive à l'égard du succès des stagiaires. Les auteurs analysent en outre les implications pour les admissions à des programmes de formation initiale à l'enseignement.

Mots clés : formation à l'enseignement, critères d'admission, préparation des stagiaires en enseignement.

Teacher Education Admission Criteria as Measure of Preparedness for Teaching

Introduction

The number of students applying for admission to teacher education programs in Ontario far exceeds the number of positions available in those programs and the teaching jobs available upon graduation (Ontario College of Teachers [OCT], 2003). For admission, programs, therefore, must select applicants from a very large pool. The choice of admission criteria affects not only which applicants are admitted but ultimately which have the opportunity to become a teacher.

Although admission criteria vary across programs, surveys of initial teacher education programs across North America suggest that many programs base their admission decisions on some combination of applicants' (a) previous academic performance (e.g., grade point average), (b) essays describing relevant experiences and interest in teaching (these essays are sometimes called an applicant profile), and (c) letters of recommendation, interviews or standardized test results (Laman & Reeves, 1983; Petersen & Speaker, 1996). Of Ontario's 13 publicly-funded faculties of education, all require academic transcripts, from which admission officers compute an applicant's grade point average (GPA); 12 programs require applicants to submit some form of written profile (the exception is Lakehead University); three – Trent University, University of Ontario Institute of Technology (UOIT), and York University – require reference letters; and two – UOIT and York – use interviews (Teacher Education Application Service [TEAS], 2010).

How can teacher educators tell whether a program's admission criteria are effective? If a primary purpose of teacher education is to prepare individuals to be successful teachers (defining success in teaching is beyond the scope of this article; see, however, Fenstermacher and Richardson, 2005, for a discussion of the complexity of defining teacher success), then studies of how well a program's admission criteria predict its graduates' eventual success as teachers could provide important information about the effectiveness of the admission criteria. From a research design perspective, the ideal study would follow all or a random sample of applicants through an initial teacher education program, whether or not they met admission criteria, and then into the classroom as independent teachers. Such a study is clearly impractical (in Ontario, initial teacher education programs cannot accommodate all applicants and schools cannot hire all graduates) and possibly unethical.¹ Studies that have followed graduates of initial teacher education programs (for example, a recent study by four Ontario Faculties of Education, Herbert et al., 2010) have often relied on self-reported teaching experiences, rather than formal evaluations of teaching, which can be expensive to perform for a study, difficult to obtain from other sources, and for which teachers may be unwilling to consent.² Studies have been further limited by restriction of

¹ Providing initial teacher education to a random sample of applicants rather than attempting to select applicants on the basis of some criteria is a questionable use of resources; students should not be assigned to the classrooms of teachers who may not be adequately prepared to teach independently.

² Some studies relating the results of standardized tests used in many U.S. states for entrance to initial teacher education programs and for certification to teaching performance have performed independent

range on the admission criteria caused by their use for selection and by the fact that some graduates do not seek, and many graduates do not obtain, teaching jobs, and so it is not possible to find out how well they would perform as teachers. In summary, studies of admission criteria have three principal limitations: (a) restriction of range on the admission criteria because only applicants who met the criteria were admitted, (b) loss of some of the graduates because they did not obtain teaching jobs, and (c) reliance on self-reported teaching experiences because of difficulties obtaining formal evaluations of teaching.

This study takes a different approach to investigate admission criteria. We have chosen to use pre-graduation proxies for post-graduation independent teaching performance. Although these proxies – (a) performance in the two practice teaching blocks, and (b) judgements of the teacher candidates' preparedness for independent teaching by the teacher candidate, a course instructor, and the associate teacher – are imperfect substitutes for formal evaluations of independent teaching after graduation, their use makes possible the inclusion of all teacher candidates. The study, which was performed in a one-year, post-Bachelor's degree teacher education program in Ontario, investigated, for teacher candidates specializing in mathematics, the relationships among (a) admission criteria (grade point average and ratings of applicant profiles), (b) performance in practice teaching, and (c) perceived preparedness for independent teaching. Although other studies have investigated the relationship of admission criteria to practice teaching, few have examined the relationship with judgments of preparedness (Casey & Childs, 2007).

In the next sections, we summarize the existing research on the use of GPA and written profiles as admission criteria. We also describe previous research on the prediction of success in practice teaching and judgements of preparedness for teaching.

Literature Review

Grade Point Average

GPA is the most widely used means of assessing and accepting students into teacher education programs (Lawrence & Crehan, 2001; Mikitovics & Crehan, 2002). GPA is typically viewed as indicative of the ability to succeed in an educational setting. In addition, GPA is readily available from applicants' transcripts. According to the latest study from the National Center for Education Information survey (Feistritzer, 1989) more than 75 per cent of the 1,287 responding teacher education programs in the United States used college GPA as a criterion for admission. In Canada, several universities use weighted GPA combined with other criteria (Smith & Pratt, 1996). As Smith and Pratt note, "The practice conforms with the conventional academic practice; rejected applicants rarely challenge it" (p. 43). However, although GPA is the most used measure for entrance into teacher education programs in universities, it is not unequivocally accepted as valid criterion for admission (Byrnes, Kiger, & Shechtman, 2003; Salzman, 1991).

Olstad, Beal, Noe, and Schaefer (1983), who conducted one of the first studies to investigate the predictive value of the GPA for success in practice teaching, rated teacher candidates' success in practice teaching as high, medium, or low, based on the rank orderings of students by their university-based, practice teaching supervisors. They found

observations or obtained principals' ratings of beginning teacher performance, but have not included other admission criteria; see D'Agostino & Powers, 2009, for a summary.

that GPA was a significant predictor of success in practice teaching. However, most subsequent studies have not found a strong relationship between GPA and performance in practice teaching (Demetrulias, Chiodo, & Diekman, 1990; Salzman, 1991; Webster, 1988). Of course, when academic admission standards are set very high so that the range of GPAs is truncated, the reduced variance in GPA makes it difficult to observe a relationship with other variables. The fact that we do not know how the applicants who were screened out because of low GPAs would have performed, had they been admitted, makes it difficult to determine whether the minimum GPA is appropriate.

A strong relationship between GPA and overall success in an initial teacher education program has been found by several investigators (Basom, Rush, & Machell, 1994; Caskey, Petersen, & Temple, 2001; Lawrence & Crehan, 2001). However the literature on this topic is far from unanimous (Byrnes et al., 2003; Smith & Pratt, 1996). It may be that GPA is indicative of academic skills that are useful in completing the coursework portion of the teacher education programs (Casey & Childs, 2007).

Written Profiles

The second most used measure for admission into teacher education programs is a written profile, in which applicants describe experiences related to teaching and reflect on their interest in teaching. A profile may also ask for information about (a) previous academic successes, (b) personal characteristics, (c) employment and training, (d) volunteer or service experiences, (e) work with diverse groups, (f) languages spoken, (g) special skills, and (h) leadership roles. Such a profile may elicit information that could also be obtained in an interview.

Caskey et al. (2001) suggest that profiles can reveal applicants' (a) motivation related to pupil needs, as opposed to self interest, (b) congruence with the program and mission of the institution, (c) vision of need or quality in schools, and (d) ability to communicate in a compelling manner in writing. According to Smith and Pratt (1996), at Queen's University, applicants' profiles were read for evidence of a history of commitment and recorded ability to work with others in helping capacities. However, Smith and Pratt found that whether the profile was typed, the gender of the applicant, and travel experiences ratings also influenced assessors' rating.

Practice Teaching Performance

Teacher education programs typically consist of formal instruction and complementary opportunities for supported practice. The latter, often referred to as student teaching or practice teaching, is the most universal component of teacher education programs and usually involves teaching under the supervision of a classroom teacher, often with support from the teacher education program's instructors. Although practice teaching is considered essential for the development of pedagogical knowledge and skills (Darling-Hammond, 2006), evaluations of practice teaching have not been found to be good predictors of subsequent teaching performance (Millman & Darling-Hammond, 1990). This may be, in part, because practice teaching evaluations are typically performed by the associate teacher, who supervises the practice teaching and whose experience observing teacher candidates is limited to her or his own classroom.

Preparedness for Teaching

Asking teacher candidates and those who have had an opportunity to observe them during their teacher education program to rate their preparedness to teach, while not a substitute for measures of their actual post-graduation performance as independent teachers, may nevertheless provide useful information. Furthermore, it has the advantage of potentially including all teacher candidates, including those who may not seek or get teaching jobs after graduation.

The most influential research on preparedness was an American national study of teacher education programs in 1997 by the National Center for Restructuring Education, Schools, and Teaching. The survey items were based on work by L. Darling-Hammond in 1992 (personal communication, 2004) in which she described and analyzed learner-centred standards for schools and standards set by the National Board for Professional Teaching Standards, and the Interstate New Teacher Assessment and Support Consortium Standards. An adaptation of this survey, developed by Silvernail (1998) and consisting of subscales measuring preparedness to *Promote Student Learning*, *Teach Critical Thinking and Social Development*, *Use Technology*, *Understand Learners*, and *Develop Instructional Leadership*, was subsequently used to assess the preparedness of teachers in New York City. According to the results of the New York City Teacher Survey, new teachers who had state certification were more likely to feel well-prepared in (a) subject area knowledge, (b) use of instructional strategies, (c) proficiency in educational technology, and (d) effective classroom management (Imbimbo & Silvernail, 1999). However, most teachers felt that they were not well-prepared to help all students achieve high academic standards, especially upon initial entry to the classroom. Teachers who did not have state certification, or had not completed a teacher education program, felt significantly less prepared than those who had completed formal teacher education training. In addition, these teachers felt particularly ill-prepared or inadequate in the use of educational technology and how to meet the needs of new English language users.

The Present Study

The present study evaluates whether two common admission criteria used by a teacher education program, entering GPA and a written profile, are predictive of practice teaching performance and judgments of teacher candidate preparedness for teaching. Although 12 of the 13 Ontario teacher education programs use both GPA and a profile as admission criteria, the research examining the combination of these criteria is very limited. In addition, no Canadian studies and only a few international studies have examined the relationship of the admission criteria to judgments (by the teacher candidates, their instructors, and the associate teachers with whom they did their practice teaching) of teacher candidates' preparedness to teach at the end of a teacher education program.

Methodology

Participants

The principal participants in this study were teacher candidates specializing in high school mathematics attending a one-year, post-Bachelor's degree teacher education program in Ontario during the 2003 - 2004 academic year. Of the 136 teacher candidates in

this specialization, 102 agreed to participate in the study. Of those participating, 62 (61.8%) were female and 38 (38.2%) were male. These proportions are similar to the overall proportions for this specialization: 58.1 per cent female and 41.9 per cent male. The teacher candidates had diverse educational training, experience, and expertise in mathematics; however, all had met the requirement of a minimum of two university-level mathematics courses.

Because this study required collecting judgments about teacher candidates' preparedness to teach from their instructors in their specialty area and from their associate teachers, we also requested the participation of the instructors and associate teachers. All teacher candidates specializing in high school mathematics were instructed by two mathematics instructors, both of whom consented to participate. Both were high school teachers from school districts in Ontario who were seconded to teach in the teacher education program. Both had at least 17 years experience teaching in the regular school system. One of the instructors had four years experience teaching in an initial teacher education program; the other had less than one year of experience.

The teacher candidates were required to complete two practice teaching sessions, each four and a half weeks long. One session was in the specialty area of mathematics; the other was in the teacher candidates' other area of specialization. For 40 of the teacher candidates, their mathematics practice teaching was in the second session; we requested the associate teachers with whom they were working to provide judgements of the teacher candidates' preparedness for teaching. Of the 40 associate teachers, 21 consented to provide judgements.

GPA and Profile Ratings

The teacher candidates' GPA and the ratings that had been assigned to their profiles during the admission process were obtained from the program's registrar. The GPA, an average of the best fifteen courses from the applicant's undergraduate degree, is expressed as a percentage (recall that this program is a one-year, post-Bachelor's initial teacher education program); adjustments may be made for degrees from universities that use different grading scales from those used by the teacher education program in the present study.

The written admission profile for 2003 - 2004 asked applicants to "*Describe three significant teaching and/or teaching related experiences*" and identify insights about teaching and learning they gained from those experiences; to "*Explain how you might contribute to the education of students in today's schools*"; and "*What additional experiences, qualifications or other information relevant to your potential as a teacher do you wish the Admissions Committee to consider?*" Each profile was read holistically by two reviewers (teacher education instructors and administrators from nearby school districts) who assigned it a letter grade: A, A-, B+, B, B-, C+, C, C-, D+ (a code of R was assigned by the registrar to indicate special circumstances requiring further evaluation). The reviewers then discussed and reached consensus on a grade for the profiles; if consensus was not achieved, a third reviewer read the profile. For the analyses, the letters were converted to numbers, ranging from 1 for R to 10 for A.

Practice Teaching Performance

The anecdotal written evaluations completed by the associate teachers who supervised the teacher candidates' first and second practice teaching sessions were obtained from the office that coordinates practice teaching. The associate teachers provided comments on six aspects of teacher candidates' performance: (a) planning, instruction, and evaluation; (b) communication skills; (c) competence in curriculum areas; (d) diversity, equity, and student involvement; (e) professionalism; and (f) classroom management. The associate teacher also assigned an overall rating of pass or fail for the practice teaching session. To make possible examination of the relationship between practice teaching performance and the admission criteria and judgements of preparedness for teaching, it was necessary to assign ratings to the anecdotal evaluations. Based on a careful reading of the associate teacher's comments and pass/fail rating for each practice teaching session for each teacher candidate, the first author assigned a letter grade (A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F) to each evaluation. Because each of the 102 teacher candidates had two practice teaching sessions, a total of 204 evaluations were completed by associate teachers. A randomly selected 10 of these 204 evaluations were also graded independently by another instructor in the program. Both the first author and the other instructor had previously served as associate teachers. To assess inter-rater reliability of the grades on these ten evaluations, Cohen's Kappa was calculated. The Cohen's Kappa obtained, $r = .62$, indicating substantial agreement between the two graders and suggesting that the ratings were replicable. Thereafter, the first author rated the remainder of the practice teaching evaluations. For the analyses, the letter grades assigned were converted to numbers, ranging from 1 for F to 13 for A+.

Teaching Preparedness Survey

Judgments of the teacher candidates' preparedness for teaching were collected from (a) the mathematics instructors, (b) the supervising teachers for practice teaching, and (c) the teacher candidates specializing in high school mathematics, using a survey adapted by the first author from the New York City Teacher Survey (Silvernail, 1998). Only the original survey's Section B, which is specific to teacher preparedness, was used. Section B was comprised of 40 items rated using a five-point Likert-type scale ranging from 1 = *not at all* to 5 = *very well*. Factor analyses by Silvernail (1998) of the original instrument had established five sub-scales based on 36 of the items: *Promote Student Learning* (14 items), *Teach Critical Thinking and Social Development* (8 items), *Use Technology* (5 items), *Understand Learners* (5 items), and *Develop Instructional Leadership* (4 items). Silvernail found these subscales to have acceptable internal consistency (that is, consistently positive intercorrelations among the items on a subscale), with Cronbach's alpha ranging from .82 to .94. Evidence for discriminant validity was provided by Darling-Hammond, Chung, and Frelow (2002), who found that teachers who had completed a teacher education program scored higher on the measures of preparedness than those who entered teaching without such preparation.

The survey was completed by the teacher candidates, their instructors, and the teachers who supervised their practice teaching. The instructions differed slightly among the groups, asking the teacher candidates to judge their own preparedness and the instructors and associate teachers to judge the teacher candidates' preparedness.

Using the judgements of the teacher candidates, the instructors, and the associate

teachers in this study, the internal consistency of the five subscales for each type of judges was also computed. Cronbach's alpha for the subscales ranged from .79 to .90 for the teacher candidates and from .83 to .96 for the associate teachers. These values are comparable to Silvernail's (1998) finding of Cronbach's alpha ranging from .82 to .94 and are acceptable. For the instructors, Cronbach's alpha ranged from .82 to .94 for four of the five subscales. For the *Understands Learners* subscale, however, the item, "*Work with parents and families to better understand students and to support their learning,*" was not positively correlated with the other items and so was removed from further analyses. With the removal of this item, Cronbach's alpha for this subscale was .75.

Data Analyses

Prior to analyzing the data, the variables were examined for missing data. No variable had more than 5 per cent of the observations missing, which was considered acceptable. Where data were missing, the mean value for that variable across observations was inserted.

Descriptive statistics were computed for relevant teacher candidate characteristics and educational background (i.e., gender, age, mathematics-related degree, and highest degree obtained).

To determine the relationship between performance in the first and second practice teaching sessions, a Spearman rank order correlation was computed. To compare the judgments of perceived preparedness of teacher candidates by the three groups, a series of paired sample *t*-tests was conducted. Because of the multiple comparisons, a Bonferroni adjustment was used and the criterion for statistical significance was reduced to .025 (i.e., $\alpha = .05/2 = .025$). Finally, to assess the relationships among incoming GPA, profile ratings, performance in the two practice teaching sessions, and the judgments of preparedness, Pearson product-moment correlations were computed.

Results

In the following sections, we first describe the teacher candidates who participated in this study and then examine the relationships between their scores on the criteria used for admission – that is, their entering GPA and written profile – and their performance in the practice teaching sessions and judgments of their preparedness for teaching.

Demographics, Educational Background, and Admission Criteria of the Teacher Candidates

As noted previously, 62 (61.8%) of the 102 teacher candidates who participated were female and 38 (38.2%) were male. Forty-four (43.1%) were between the ages of 20 and 25; 34 (33.3%) between 26 and 30, and 8 in each of the following age ranges: 31 to 35 (7.8%), 36 to 40 (7.8%), and over 40 (7.8%).

Seventeen (16.7%) participants had a university degree in mathematics, 76 (74.5%) had mathematics-related degrees (e.g., engineering or science) and nine (8.8%) had degrees that were not mathematics or mathematics related. Thirty-two participants (31.4%) had a Bachelor of Arts (BA) or Bachelor of Science (BSc) degree, with 50 (49%) holding an Honours BA or Honours BSc. Sixteen (15.7%) had a Master of Arts or Master of Science degree and 4 (3.9%) had a Doctor of Philosophy degree.

The average entrance GPA for these teacher candidates was 78.9 per cent ($SD = 6.19$) with a range of 69.8 per cent to 94.3 per cent. Four (3.9%) of the participants in this study received a profile rating of A; 54 (52.9%) received a B; 38 (37.3%), a C; 1 participant (1.0%) received a D+; and 5 (4.9%) received an R. Unfortunately, profile rating information for other teacher candidates in the program who did not participate in this study was not available.

Practice Teaching Performance

In the first practice teaching session, 53 (52.0%) of the teacher candidates received a rating between A+ and A-; 32 (31.3%), a rating between B+ and B-; 14 (13.8%), a rating in the C range; 2 (2.0%), a rating of D+; and 1 (1.0%), a rating of F. In the second session, performance improved significantly (the average rating was 10.64 [$SD = 2.23$] instead of 9.95 [$SD = 2.56$], $t(101) = -2.32$, $p < .05$), with 62 (60.8%) receiving a rating in the A range; 28 (27.4%), a rating in the B range; and the remaining 12 (11.8%), a rating in the C range. When the sessions were compared by specialty area instead of order, the average rating was slightly lower for practice teaching in a mathematics classroom ($M = 10.15$, $SD = 2.66$) than for practice teaching in another subject ($M = 10.47$, $SD = 2.16$), but the difference was not statistically significant, $t(97) = 1.01$, $p = .32$.

A Spearman rank order correlation was computed to assess the relationship between the ratings for the first and second practice teaching sessions. Results revealed a weak but significant positive relationship ($r = .23$, $p < .05$). In other words, although there was some similarity in the ordering of teacher candidates between the two sessions, only about five per cent of the ordering of teacher candidates in one session was explained by the ordering in the other session. The limited range of ratings, the varying expectations of the associate teachers who completed the anecdotal evaluations, and the limited information available to the researchers when they assigned ratings to these evaluations all likely contributed to this weak relationship.

Relationships among Judgments of Teaching Preparedness

Table 1 summarizes the teacher candidates' and the instructors' judgements of the teacher candidates' preparedness for teaching. On four of the five subscales, instructors' judgments of the teacher candidates' preparedness were significantly more positive than the teacher candidates' own judgments. The exception was the *Promote Student Learning* subscale, in which the instructors' judgements were more positive, but not significantly so.

Table 1

Instructor and Teacher Candidate Judgements of Preparedness for All Teacher Candidates

Preparedness Survey Subscales	Instructor <i>M (SD)</i>	Teacher Candidate <i>M (SD)</i>	Comparison of Instructor and Teacher Candidate Judgements
Develop Instructional Leadership	4.33 (0.52)	3.83 (0.64)	6.12*
Promote Student Learning	3.96 (0.52)	3.91 (0.50)	0.66
Teach Critical Thinking and Social Development	4.10 (0.39)	3.95 (0.58)	2.40*
Use Technology	4.30 (0.54)	3.91 (0.62)	4.96*
Understand Learners	4.08 (0.48)	3.80 (0.59)	4.29*

Note. * $p < .025$, $N = 102$

For the 21 teacher candidates for whom associate teachers' judgments were available, these judgments were also compared with the teacher candidates' self-evaluations. Table 2 summarizes, for these 21 teacher candidates, the judgements given by the associate teachers, the instructors, and the teacher candidates themselves. On the *Develop Instructional Leadership* and *Teach Critical Thinking and Social Development* subscales, the instructors' judgments were significantly higher than the associate teachers' judgements; on the other subscales, the instructors' judgments were higher, but the differences were not significant. On all five of the subscales, the teacher candidates' judgments were more positive than the judgments of their associate teachers; however, none of the differences was statistically significant. For all of the subscales the associate teachers' judgments have larger standard deviations than either the teacher candidates' or the instructors' judgments, suggesting greater variation across individual supervisors in their judgments. The statistical power of the comparisons with the associate teachers' judgements was limited by the small number of teacher candidates for whom the associate teachers' judgements were available.

Prediction of Practice Teaching Performance and Preparedness

Neither entering GPA nor admission profile ratings were significantly correlated with performance in the two practice teaching sessions. This result may be, in part, due to the restricted range of GPA and profile ratings in this group of teacher candidates because only applicants with relatively high GPAs and profile ratings were offered admission into the program. Entering GPA and admission profile ratings were also not significantly correlated with each other.

Entering GPA was significantly correlated with the instructors' judgments on three of the five subscales: *Promote Student Learning* ($r = .34$, $p < .01$), *Teach Critical Thinking and Social Development* ($r = .34$, $p < .01$), and *Use Technology* ($r = .22$, $p < .05$). The correlations between entering GPA and the teacher candidates' self-evaluations ranged from $-.02$ to $.05$, none of which was significant. The correlations of entering GPA with the associate teachers' judgments ranged from $.08$ to $.30$, but also were not significant (this is,

in part, because supervisors' judgments were available for only 21 of the teacher candidates). No significant correlations were found between the profile ratings and the five preparedness sub-scales for the teacher candidates, the instructors, or the associate teachers.

Relationship between Practice Teaching Performance and Preparedness

Correlations between the teacher candidates' self-evaluations of preparedness and their performance in the first and second practice teaching sessions ranged from .01 to .10 for the first session and from -.04 to .06 for the second session; none of these correlations was significant. The instructors' judgments for four of the five subscales were significantly correlated with the teacher candidates' performance in the first session

Table 2

Associate Teacher, Instructor, and Teacher Candidate Judgements of Preparedness for Teacher Candidates with Associate Teacher Judgements

Preparedness Survey Subscales	Associate Teacher <i>M (SD)</i>	Instructor <i>M (SD)</i>	Teacher Candidate <i>M (SD)</i>	Comparison of Associate Teacher and Instructor Judgements	Comparison of Associate Teacher and Teacher Candidate Judgements
Develop Instructional Leadership	3.76 (0.79)	4.29 (0.56)	3.90 (0.55)	2.76*	0.86
Promote Student Learning	3.60 (0.81)	3.85 (0.47)	3.90 (0.43)	1.72	1.69
Teach Critical Thinking and Social Development	3.52 (0.81)	4.04 (0.37)	3.90 (0.52)	3.44*	2.09
Use Technology	3.94 (0.73)	4.26 (0.53)	3.97 (0.55)	1.88	0.17
Understand Learners	3.55 (0.71)	3.86 (0.43)	3.70 (0.45)	1.64	0.90

Note. * $p < .025$, $N = 21$

(*Promote Student Learning*: $r = .21$, $p < .05$; *Teach Critical Thinking and Social Development*: $r = .29$, $p < .01$; *Use Technology*: $r = .24$, $p < .05$; and *Develop Instructional Leadership*: $r = .21$, $p < .05$) and for three of the subscales with performance in the second session (*Teach Critical Thinking and Social Development*: $r = .17$, $p < .05$; *Use Technology*: $r = .19$, $p < .05$; and *Develop Instructional Leadership*: $r = .20$, $p < .05$). Finally, associate teachers' judgments on two of the subscales were significantly correlated with practice teaching performance in the first session (*Promote Student Learning*: $r = .49$, $p < .05$; *Teach Critical Thinking*: $r = .53$, $p < .05$) and for all five sub-scales with performance on the second session (*Promote Student Learning*: $r = .80$, $p < .01$; *Teach*

Critical Thinking: $r = .72, p < .01$; *Use Technology*: $r = .58, p < .01$; *Understand Learners*: $r = .55, p < .01$; *Develop Instructional Leadership*: $r = .50, p < .05$).

Discussion

Admission Criteria, Practice Teaching, and Teaching Preparedness

The ratings of the profile were not predictive of either the performance in practice teaching or any of the judgements of teaching preparedness. This finding may be due in part to the way the profile was rated: A single rating was assigned holistically across applicants' answers to several questions, so that it is not possible to know the extent to which an applicant's experiences, insights about teaching and learning, or explanation of how they might "*contribute to the education of students in today's schools*" were reflected in the rating he or she received.

Entering GPA was significantly correlated with instructors' judgements on three of the subscales (*Promote Student Learning*, *Teach Critical Thinking and Social Development*, and *Use Technology*), but not with judgements by the associate teachers or the teacher candidates. The correlations were .34, .34, and .22, respectively, meaning that entering GPA accounted for about 12 per cent of the variance in instructors' ratings of both *Promote Student Learning* and *Teach Critical Thinking and Social Development* and about five percent of the variance in *Use Technology*. As we noted earlier, the instructors' judgments were based on their knowledge of the teacher candidates' work in their mathematics methods course, as well as on observations of their practice teaching. Because entering GPA has been found in other studies to be related to performance in teacher education coursework, because both depend to some extent on general academic skills, it is not surprising that the entering GPA should also be reflected in the instructors' ratings. The two subscales for which the correlations were not significant are *Understand Learners* and *Develop Instructional Leadership*, both of which may be less dependent on academic skills.

Judgments of Teaching Preparedness

That the instructors' ratings were significantly more positive than the associate teachers' judgements on the *Develop Instructional Leadership* and *Teach Critical Thinking and Social Development* subscales may be explained by differences in their opportunities to observe the teacher candidates and in their frames of reference. The associate teachers interacted with the teacher candidates in a school setting where the teacher candidates were in the role of practice teacher. When judging the teacher candidates' preparedness for independent teaching, the associate teachers may have been comparing them with the experienced teachers in their schools. In contrast, the teacher education instructors may have based their judgments on the teacher candidates' performance in comparison to the performance of previous teacher candidates in the initial teacher education program. Their expectations, therefore, may have been different from those of the associate teachers. That the teacher candidates' self-evaluations were less positive than the instructors' judgements on four of the subscales (*Teach Critical Thinking and Social Development*, *Use Technology*, *Understand Learners*, and *Develop Instructional Leadership*) may reflect the teacher candidates' lack of experience and/or confidence.

According to Darling-Hammond et al. (2002), of the five subscales derived from the factor analysis done by Silvernail (1998), the two that most pertain to teaching skills are *Promote Student Learning* and *Teach Critical Thinking and Social Development*. In this

study, average ratings of preparedness by instructors, associate teachers, and the teacher candidates were highest on these two subscales. In particular, the fact that there were no significant differences among the three sets of ratings on the subscale *Promote Student Learning* and that the average ratings on this subscale were close to 4, which corresponds to a rating of *well*, suggests that all three groups were quite confident of the teacher candidates' preparedness in this area. Questions on this subscale referred to the teacher candidates' preparedness (a) to understand how different students learn, (b) to help students achieve high academic standards, (c) to use instructional strategies to promote active student learning, and (d) to plan instruction by using knowledge of learning, subject matter, curriculum, and student development.

Relationships between Practice Teaching Performance and Teaching Preparedness

The instructors' judgments of teaching preparedness on four of the five subscales (*Promote Student Learning*, *Teach Critical Thinking and Social Development*, *Use Technology*, and *Develop Instructional Leadership*) were significantly correlated with practice teaching performance in the first session and on three of the five subscales (*Teach Critical Thinking and Social Development*, *Use Technology*, and *Develop Instructional Leadership*) with performance in the second session; correlations ranged from .21 to .29 for the first session and from .17 to .20 for the second session. These results are not surprising because the instructors observe the teacher candidates both in their coursework and occasionally during their practice teaching. Although the instructors did not observe the teacher candidates' practice teaching as often as did the associate teachers and were not required to make a formal judgment about the teaching performance of teacher candidates, these results indicate that they were able to make judgments about the teaching performance of the teacher candidate that were consistent with those of the associate teachers.

The associate teachers' judgments of the teacher candidates' preparedness for two of the subscales (*Promote Student Learning* and *Teach Critical Thinking*, with correlations of .49 and .53, respectively) were significantly correlated with teacher candidates' performance in the first practice teaching session and their ratings for all five subscales were significantly correlated with performance on the second session, with correlations ranging from .50 to .80. This finding is not surprising because the same associate teachers also wrote the evaluations for that teaching session. These results also suggest that the researcher's grading of the evaluations captured the intent of the associate teachers.

Limitations

Several factors limit the interpretation of these results. First, the teacher candidates in this study were all specializing in high school mathematics in a single teacher education program. It is not known whether the knowledge, skills, and attitudes of the teacher candidates training to be high school mathematics teachers are representative of those of teacher candidates in other specializations. Furthermore, it is not known whether teacher candidates in this program are similar in academic status, background, experience, knowledge, skills, and attitudes to those attending other teacher education programs. In addition, only about 75 per cent of the teacher candidates in high school mathematics in this program chose to participate in the study. Although this participation rate was considered

acceptable, it is not possible to determine how those who did not participate might have differed from those who did. In addition, the two mathematics instructors may not have been representative of all instructors in the program. Finally, only 21 of the 40 associate teachers who were contacted agreed to provide judgments of teacher candidates' preparedness and these associate teachers and/or the teacher candidates they supervised may not have been representative.

Summary

In summary, the present study investigated whether two measures that were used as admission criteria – entering GPA and ratings on a written profile in which applicants described their teaching-related experiences, what they had learned from the experiences, and how they would contribute to students' education – were predictive of teacher candidates' subsequent performance in practice teaching and judgements of their preparedness for teaching. Although one would wish for formal ratings of teacher candidates' independent teaching performance after they graduate from the program and are hired as teachers, most studies that follow teacher candidates after graduation suffer from three limitations: (a) restriction of range on the admission criteria specifically because those criteria were used to make admission decisions, (b) loss of some teacher candidates because they did not obtain teaching jobs, and, often, (c) reliance on self-reported teaching experiences because of difficulties obtaining formal evaluations of teaching. In this study, the use of practice teaching performance and judgements by the teacher candidate, a course instructor, and the associate teacher of the teacher candidates' preparedness for independent teaching, although imperfect substitutes for formal evaluations of independent teaching after graduation, avoided the problem of losing teacher candidates who did not seek or obtain teaching jobs after graduation.

As described in the preceding sections, the profile was not significantly related with either practice teaching or preparedness. Entering GPA predicted between five and 12 per cent of variance in course instructors' judgements of teacher candidates' preparedness to *Promote Student Learning*, *Teach Critical Thinking and Social Development*, and *Use Technology*, but not *Understand Learners* or *Develop Instructional Leadership*. GPA was not significantly related with judgements by the associate teachers or the teacher candidates, however. This finding is perhaps not surprising because the instructors were likely basing their judgements of preparedness in part on teacher candidates' academic performance in their courses; the same academic skills that affected the teacher candidates' performance in their undergraduate courses and so their entering GPAs also likely affected their performance in courses in the teacher education program.

An encouraging finding was that ratings of preparedness by instructors, associate teachers, and the teacher candidates themselves suggested the teacher candidates were adequately to well-prepared in all areas.

Implications for Further Research

At a time when admission to initial teacher education programs is highly competitive, choices of admission criteria are particularly relevant. The measures used in this study are at best proxies for teacher candidates' ability to teach independently. Further research should examine the relationship between these admission criteria and formal ratings of teacher candidates' post-graduation independent teaching, although such ratings

are unlikely to be obtainable for all teacher candidates because some may not seek or obtain teaching positions or, if they do, consent to formal ratings. Research examining the relationship between the proxies used in this study and such post-graduation ratings would also help teacher educators evaluate whether the proxies are appropriate; such research will also suffer from the loss of teacher candidates after graduation, however.

The results of this study suggest that most teacher candidates, at least those specializing in mathematics in one initial teacher education program, are prepared for independent teaching, based on judgements (a) by the instructors in their specialty area, (b) by the associate teachers who supervised their practice teaching, and (c) by the teacher candidates themselves. This is encouraging. However, only the instructors' judgements were predicted by the entering GPA, likely because the teacher candidates' academic ability affected both their entering GPA and the performance the instructors observed in the teacher education program course. The ratings of the profiles were not predictive of either practice teaching performance or any of the judgements of preparedness for teaching, which may be due at least in part to the holistic way in which a single rating was assigned across several questions. Analyses such as these are also made difficult by the restriction of range in the admission criteria that result when only those teacher candidates with relatively high scores on the criteria were offered admission to the program.

What are the implications of these findings for initial teacher education programs? Choices of admission criteria should be based, at least in part, in an analysis of the knowledge, skills, and attitudes needed by beginning teachers and which of these are developed during a specific initial teacher education program. Given this information, it should be possible to estimate what knowledge, skills, and attitudes, as well as preparedness to learn, are required at entry into a program. A set of admission criteria could be designed to evaluate these requirements. On the basis of the present study's findings, it is not possible to conclude that either entering GPA or ratings of applicants' responses to a written profile have predictive value. This does not mean that these criteria are inappropriate, but does suggest that further research is needed. Until more research is available, we encourage programs to make sure that the criteria they are using at least have clear rationales based on careful analyses of their program.

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