STUDENT TRANSITION AND ROLE PERCEPTIONS OF FIRST YEAR SCIENCE ACADEMICS

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ABSTRACT

This paper reports on the self-perceived roles of Science lecturers at the University of Johannesburg, who teach to first year students. Since 1990, South Africa's higher education (HE) sector transformed from a near elite towards a mass system. A marked increase in student enrolments, admitting substantially more 'non-traditionals' (who typically display academic risk profiles) into the sector, followed. The Faculty's First Year Academy (a community of practice for lecturers) supports staff to optimally engage with and to provide enabling learning environments to these students. Student transition to HE is a familiar research theme, but little is known about role perceptions of academic staff who engage with transitional students. Student transition strategies and roles of academics who deal with transitional students were explored. Science lecturer perceptions of the importance of and their competence in fulfilling eight roles were empirically interrogated and gender was found to significantly influence lecturers' views and behaviours.

Keywords: Teaching to transitional students; Faculty role competency; Science faculty roles; Gender in Science teaching; First Year Experience

1. PURPOSE AND CONTEXT OF THE RESEARCH

The purpose of this study is to interrogate perceived role importance and competency of lecturers in a Faculty of Science at a large public higher education institution (HEI), who engage with transitional (first year) students in a post-apartheid South Africa. Since the early 1990s, South Africa's public higher education (HE) sector has been in rapid conversion from near elite towards a mass system. Enrolments advanced by more than 80% from 495,356 to 899,120 between 1994 and 2011 (Department of Education, 2012:37). More non-traditional students (Giancola, Munz & Trares, 2008), typically with increased risk profiles gained access to HE, having characteristics such as insufficient prior educational experience, unsatisfactory levels of school performance, being older or having first-generation status (Cavote & Kopera-Frye, 2007; Pascarella, Pierson, Wolniak & Terenzini, 2004; Olive & Russ, 2010).

Approaches targeting student transition to HE have long been implemented in several countries, with so-called First Year Experience (FYE) programmes generating substantial dividends. In South Africa, Stellenbosch University has been the first to introduce a so-called First Year Academy in 2007. The University of Johannesburg (UJ, 2009:4), a newly merged institution,

approves its FYE programme in 2009. The programme posits ten principles, of which the following two are noteworthy:

- "It is incumbent on the university to ensure that students are provided with enabling learning environments."
- "The challenge of first year teaching requires special expertise from the academic staff, who must in turn be assisted in meeting these challenges."

UJ's Faculty of Science already established their First Year Academy (FYA) in 2007. The FYA serves as a community of practice for lecturers of first year students, promoting Ernest Boyer's Scholarship of Teaching (and Learning) (Boyer, 1997). Much has been written about student transition to HE (compare Bowles, Dobson, Fisher & McPhail (2011); University of Washington (2001); Guram (2011); Kift (2009) and others), but according to Corkill, Elkington and Lawrence (2011:118) "…far less is known about the *transitional experiences of academic staff* who themselves support transitional students" (authors' italics).

The Faculty of Science's FYA researches strategies and roles of lecturers in dealing effectively with transitional students (UJ, 2013). Adaptions to academics' customary roles are recommended and the Academy acknowledges that changes in role expectations may lead to role ambiguity and conflict among the lecturers, to the potential detriment of the faculty. However, appropriate lecturer behaviour and duties and also expected competencies have to be identified and developed if the faculty continually wants to enhance the academic success of its growing number of transitional students.

2. LITERATURE PERSPECTIVES

As background to the empirical component of the research, two complementary sets of literature perspectives are relevant. The first is an interrogation of strategies that HEIs (and more specifically UJ's Science Faculty) implement in dealing with transitional students. The second is an outline of expected (and also changing) roles and competencies of lecturers who teach to transitional students.

2.1 Strategies in dealing with students in transition

The scholarly dialogue on the transition of students to HE is well-established internationally since the 1970s (Akerlind 2005:1) and is actively pursued by all South African HEIs over the last decade. "Access for success" (Leibowitz, Van der Merwe & Van Schalkwyk, 2009:3) is the almost magic slogan, which has generated a vast body of literature and a lively community of practice. The following strategies typically characterise access for success drives.

2.1.1 Specialised FYE centres

Dedicated FYE centres that ease student transition into full-fledged university curricula, tempo, workload and standards are quite common in the USA. The Centre for Academic Enhancement (University of Georgia), University College (Indiana University-Purdue University

Indianapolis) and the Center for the First-Year Experience (Wisconsin-Madison University) among many others are proof of this. Specialised FYE structures are also on the increase in European, Asian, UK and Australian HE (Meyers & Ryan, 2008). South African HEIs, due to a lack of dedicated resources utilise academic development units and admission offices (UJ, 2013).

2.1.2 Formalised student orientation programmes

HEIs increasingly offer formalised orientation or induction programmes for transitional students (Borden & Evenbeck, 2005; Kift, 2008). Strydom and Mentz (2008) recommend that orientation programmes must have an academic nature, accommodate diverse students and enhance family involvement. UJ's Faculty of Science offers a comprehensive "First Year Seminar" (UJ, 2013) as a two week credit-bearing module. The Seminar develops students' laboratory, computer and technological skills, as well as their language and mathematical proficiency before the academic year starts. Selected first year lecturers, who are subject experts, work in teams to facilitate learning and to counsel and advise students.

2.1.3 Support programmes and structures

The Australian, Kift (2008:16) warns that "…few assumptions can be made about students' entering knowledge, skills and attitudes." Transitional attempts have to include the scaffolding of academic skills (Grayson, 1997) and students need increasingly more support (Bowles, et al. 2011:62). Multilingual and diversity challenges are priorities for South African HEIs and language and ancillary learning support programmes are customary. Support also takes the form of learning and writing centres, on-line intervention, tutoring and mentoring, as well as life skills programmes (Bowles et al., 2011; Grayson, 1996).

2.1.4 Specialised curriculum design

Alternative access or bridging programmes, and foundational modules characterise curriculum alignment efforts in South African HE a decade ago (Hay & Marais, 2004). When Government funding materialises (Department of Education, 2006) extended qualifications (offering three year programmes over a four year period, via specialised curriculum design) begin to surface in many forms (Jacobs & De Bruin, 2012). UJ's Faculty of Science (Jacobs, 2010) offers a generic first semester of fundamental science modules, articulating to various Science and Engineering programme options. These modules are designed and facilitated by selected lecturers, who exhibit a warm and caring approach towards students.

2.1.5 Profile and placement tests

Unsatisfactory and ongoing first year student performance in specifically Mathematics and Chemistry (Jansen, 2007; Potgieter, 2009) generated a number of institutional research projects. Despite increased interest in student risk profiles, confidence levels in the National Senior Curriculum (NSC) continue to drop (Yeld, 2009a). Higher Education South Africa (HESA) then commissions the National Benchmark Test (NBT) project (Griesel, 2006; Yeld, 2009b)

generating wide institutional interest (Botha, Du Plessis, Kistner & Nel, 2008; Jacobs, 2010) and the use of results for student profiling and placement purposes.

The aforementioned strategies don't just spontaneously happen. They strongly rely upon lecturers that are able and willing to proactively recognise and address the needs of students in transition. It also requires academics that, from time to time, need to adapt their traditional roles and behaviours, to better support the growing number of non-traditional transitionals for whom access towards success may be a bridge too far. The envisaged lecturer roles and competencies in respect of the latter are the focus of the next set of literature perspectives.

2.2 Roles and competencies of lecturers

2.2.1 Generic lecturer roles and competencies

Lentell (2003) regards effective lecturers as knowledge experts, listeners, and communicators, coaches, learning facilitators, mentors, problem solvers, designers, supporters and resource coordinators. Cornelius and Higgison (2000) summarise 11 literature-supported roles in both traditional and online learning environments. Briggs (2005), through probing the behaviours of Scottish academics, generates a so-called "generic role model" applicable to lecturers in all environments. Figure 1 diagrammatically represents the Briggs-model, incorporating eight so-called "core" and eight "peripheral" roles, in the inner and outer circles respectively.

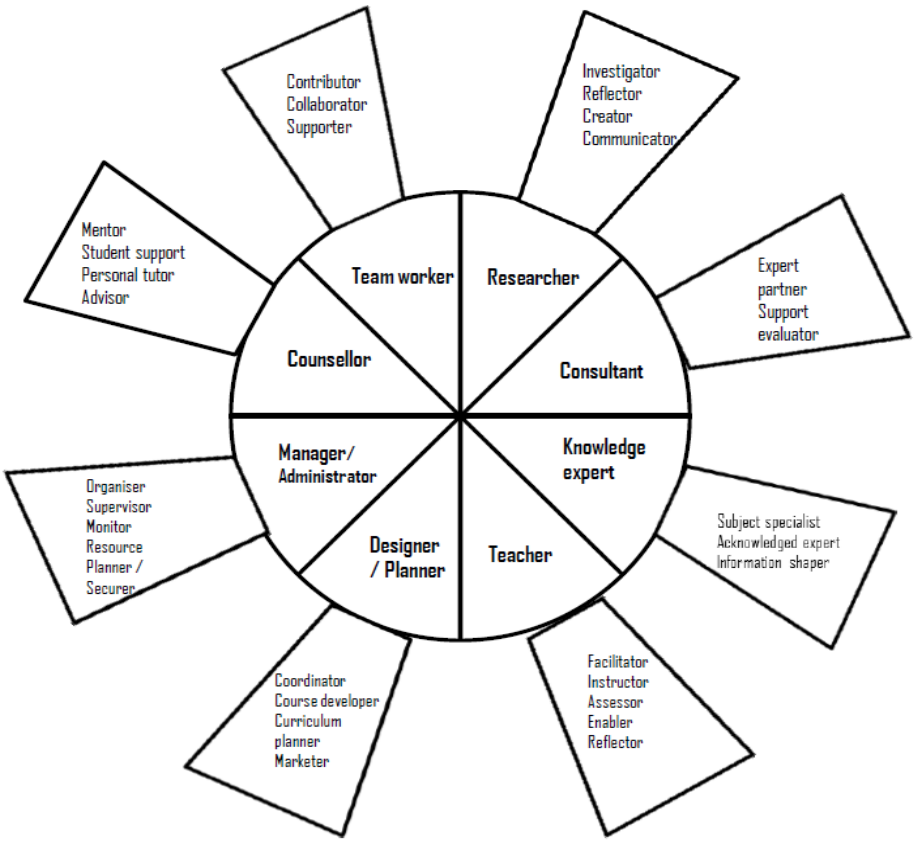

FIGURE 1: MODEL OF GENERIC LECTURER ROLES (Briggs, 2005:264)

The eight core roles are interrelated and comprise the expected repertoire of lecturer behaviours, while the peripheral roles may be less or more prominent, depending on the situation. The Briggs study denotes that lecturers regard all eight core roles as important, but perceive several competency gaps in fulfilling all the roles.

2.2.2 Roles of lecturers in dealing with transitional students

Lecturers, who deal with transitional students, are expected to make adaptions to their generic roles (as outlined in 2.2.1 above), by placing themselves in the student's position (Leibowitz et al., 2009). They have to make students feel that they 'belong' in their courses (modules) and support therefore becomes a constant need, but also a challenge. Transitional students heavily rely on lecturers as enthusiastic and accessible motivators, tutors, mentors and advisers, who listen to them and who reward hard work and performance (Cornelius & Higgison, 2001; Leibowitz et al., 2009). Corkill et al. (2011) emphasises additional role challenges such as team work, curriculum development and planning, and course design, where peers and co-lecturers jointly share the course load, ideally functioning as a community of practice.

2.2.3 The influence of gender on lecturing roles, specifically in Science faculties

In most school education systems students are taught mainly by female teachers. Science faculties have been male lecturer dominated for centuries (Corkill, et al., 2011) and it's still the case. Science lecturers traditionally emphasise subject knowledge and focus on expertise in applying the knowledge. The Briggs (2005) study highlights that male lecturers prefer to demonstrate their expertise and status through lectures, while females are more comfortable with listening to and counselling students through various teaching and learning methods. Arbuckle and Williams (2003) consider warmth, responsiveness and sympathy as typical feminine characteristics and dynamism, passion and eagerness as more masculine. All generic roles (in 2.2.1 above) are considered as essential, but lecturers (and especially Science academics) will have to fulfill "multifaceted" roles (Corkill, et al. 2011:121), while also adopting a couple of "new" roles (Cornelius & Higgison, 2001: 212). The latter expectations require extreme flexibility and responsiveness, which don't necessarily come naturally for Science lecturers.

3. SCIENCE ACADEMICS' PERCEPTIONS OF ROLE IMPORTANCE AND COMPETENCY: AN EMPIRICAL INVESTIGATION

3.1 Research methodology

3.1.1 Participants

Purposive sampling was used when, during the end of 2012 capacity building seminar (organised by the Faculty's First Year Academy), all participants (academic staff who deal with the Faculty's first-year students) were requested to complete the data collection instrument (see 3.2.1 below). Individual consent was eventually given by 53 academic staff, with Table 1 providing a demographic analysis of the participants.

TABLE 1: DEMOGRAPHIC ANALYSIS OF PARTICIPANTS

Variable		N	%
Gender	Female	31	58.5
	Male	22	41.5
	Total	**53**	**100.0**
Ethnic group	Black	17	32.1
	Other	6	11.3
	White	30	56.6
	Total	**53**	**100.0**
Home language	Afrikaans	18	34.0
	English	20	37.7
	Other	15	28.3
	Total	**53**	**100.0**
Years at UJ (since 2005)	0 to 5 years	24	47.1
	6 years +	27	52.9
	Total	**51**	**100.0**
Years of HE teaching experience	0 to 5 years	17	32.7
	6 to 10 years	15	28.8
	11 years +	20	38.5
	Total	**52**	**100.0**
Years of teaching to	0 to 5 years	17	32.7
	6 to 10 years	15	28.8
	11 years +	20	38.5

first years	**Total**	**52**	**100.0**

The participants can generally be typified as mostly *female* (59%), overwhelmingly *black* or *white* (89% of the group), commonly *English* or *Afrikaans* speaking (72% of the group), largely *not newcomers* to higher education and also *not novices* in respect of first year teaching (with almost two thirds having six or more years and with almost one in five participants who have 20 years or more experience of teaching to first year students). It can be argued that the overwhelming majority of the participants have been exposed to the changing profile of transitional students. They were thus expected to make adaptions to their own roles as lecturers over the past few years, to try and more optimally enhance first year student accommodation and learning.

3.1.2 Data collection instrument and analysis

A literature-validated structured questionnaire, based on a similar instrument, designed by Briggs (2005), collected information from the participants. The goal of the questionnaire was to gain perceptions of faculty members in respect of the importance of roles that they play in dealing with first year students and the extent to which they regard themselves as competent (or less able) to fulfil these roles.

The questionnaire forms part of the First Year Academy's project aimed at the increasing academic and social transition and eventual success of first year students. Section C of the questionnaire measured self-perceived role prominence and competencies of the lecturers, using the eight core roles of Briggs (2005:264). Respondents were requested to indicate the perceived extent of importance of each role, as well as their competencies in fulfilling these roles on a 5-point Likert-type scale (from **1** (*not important* or *competent*) through **3** (*moderately important* or *competent*) to **5** (*very important* or *competent*)). Each role was carefully described to lessen potential role uncertainty. The SPSS statistical package was used to conduct data analyses.

3.1.3 Reliability and validity of the collected data

The first step was to assess the internal consistency (*reliability*) of the data by means of Cronbach's alpha coefficients. Tavakol & Dennick (2011:53) postulate that reliability is concerned with "…the ability of an instrument to measure consistently. It should be noted that the reliability of an instrument is closely associated with its validity. An instrument cannot be valid unless it is reliable." The findings, outlined in Table 2 below, indicate that in respect of both constructs (the importance of the eight roles and participants' estimated competencies in fulfilling these roles) initial alpha values of more than 0.80 were obtained, which indicate a high internal consistency and thus also data reliability.

The second step was to assess the discriminant *validity* of the data by conducting exploratory factor analysis. Principal Components Analysis was used for factor extraction, while Varimax rotation of the original factor matrix was also performed. Table 2 indicates that in respect of

each construct (the importance of the eight roles and participants' perceived competencies in fulfilling the roles) a single interpretable factor exists (the respective eigenvalues and total variance explained by the factors are also indicated). The two factors thus indicate the validity of the data and they can respectively be labelled as the *importance of* and participants' *competence in* fulfilling the eight lecturer roles. The Kaiser-Meyer-Olkin measures and Bartlett's test of sphericity, also listed in the table, indicate sampling adequacy, and lead the researchers to conclude that this data set, although the sample size was not extravagant (just above 50), is suitable for factor analysis.

TABLE 2: RELIABILITY AND VALIDITY MEASURES

LATENT VARIABLE	Cronbach's alpha	Eigen value	KMO measure	Significance of Bartlett's Sphericity	Total % of variance explained
Perceived IMPORTANCE of lecturer roles	.821	4.790	.766	.000[a]	59.878
Perceived COMPETENCE in fulfilling lecturer roles	.882	4.427	.847	.000[a]	55.335

a: Significant at the 99% level of confidence. There are indeed measures in the data set that are appropriate for Principal Components Factor analysis

3.2 Empirical findings

3.2.1 Gender-specific views on role importance

The ratings of females compared to males in respect of the perceived importance of each of the eight roles are indicated in table 3. The table portrays the combined number and percentage of males and females, who have respectively selected 'higher' importance ratings per role (a **4** (*important*) or a **5** (*very important*)).

TABLE 3: GENDER DIFFERENCES IN RESPECT OF ROLE IMPORTANCE

First year lecturer roles	Important and Very important ratings combined								
	Females			Males			All participants		
	n (of N)	%	Mean	n (of N)	%	Mean	n (of N)	%	Mean
Manager	25 (of 31)	80.6	4.36	16 (22)	72.7	4.05	41 (53)	77.4	4.23
Team worker	22 (30)	73.3	4.13	15 (20)	75.0	3.90	37 (50)	74.0	4.04
Course designer	27 (31)	87.1	4.52	16 (22)	72.7	3.86	43 (53)	81.1	4.25
Knowledge expert	28 (31)	90.3	4.42	18 (21)	85.7	4.38	46 (52)	88.5	4.40
Researcher	21 (31)	67.7	4.03	17 (21)	81.0	4.10	38 (52)	73.1	4.06
Teacher	28 (31)	90.3	4.55	20 (22)	90.9	4.59	48 (53)	90.6	4.57
Consultant	19 (29)	65.5	4.00	16 (22)	72.7	3.91	35 (51)	68.6	3.96
Counselor	28 (31)	90.3	4.32	16 (22)	72.7	3.96	44 (53)	83.0	4.17

All eight roles were regarded as important to very important. The roles of *teachers* (who facilitate learning and the application of knowledge in specific situations) and *knowledge experts* (who possess sufficient relevant and up-to-date knowledge that they typically share with their students and peers) were judged by most participants as important. The role of *consultants* (who make students feel comfortable and are there for them, when needed) was rated by the least number of participants as important. With just more than two thirds of participants who rated the *consultant* role as important to very important, compared to almost 90% who held a corresponding view of the *teacher* and *knowledge expert* roles, the finding of Corkill, et al. (2011) in respect of Science academics was confirmed.

The mean importance ratings of females were 4 and higher for all roles, while males were a little more 'conservative', although differences (with the exception of the roles of *course designer* and *counselor*) were almost negligible. Most male and female academics regarded their roles as *teachers* as pertinent, which was expected in a Science context. The role of *course designer* (having a recognised teaching qualification and acting as curriculum developer and academic programme planner) is second in importance for females, while the *knowledge expert* role occupies the corresponding place for males. Females also value the importance of the *knowledge expert* role (having the third highest importance ranking), while males surprisingly rated their role as *course designers* as the least important.

3.2.2 Testing for significant differences in gender-specific perceptions of role importance

The Mann-Whitney U test, as appropriate non-parametric statistical technique was used to analyse differences between the medians of the responses for females and males respectively. The reasons why this statistical technique was considered appropriate are that the response values (ratings) do not follow the normal or t-distribution, they are measurable on an ordinary scale and they are comparable in size. Other assumptions underlying the Mann-Whitney U test, that were also taken into account are the coincidence of the sample and the independence of observations, which implies that data referring to one subject cannot affect the data of others (Milencović, 2011:74). Tables 4 and 5 present the *test statistics* and *ranks* for role **importance** (with gender as grouping variable) in respect of all eight roles.

TABLE 4: TEST STATISTICS[a] IN RESPECT OF ROLE IMPORTANCE

	Manager	Team worker	Course designer	Knowledge expert	Researcher	Teacher	Consul-tant	Counselor
Mann-Whitney U	260.500	245.000	209.000	320.500	303.000	334.000	304.500	260.500
Wilcoxon W	513.500	455.000	462.000	551.500	799.000	587.000	557.500	513.500
Z	-1.568	-1.154	-2.591	-.104	-.444	-.157	-.292	-1.572
Asymp. Sig. (2-tailed)	.117	.248	.010	.917	.657	.876	.770	.116
Exact Sig. (2-tailed)	.119	.245	.010[b]	.976	.669	.946	.783	.121
Exact Sig. (1-tailed)	.057	.124	.005[b]	.485	.337	.478	.413	.064

a Grouping Variable: Gender **b** Significant at the 99% level of confidence

TABLE 5: RANKS IN RESPECT OF ROLE IMPORTANCE

Role feature	Gender	N=	Mean Rank	Sum of Ranks
Manager – Importance	Female (1)	31	29.60	917.50
[N=53]	Male (2)	22	23.34	513.50
Team worker – Importance	(1)	30	27.33	820.00
[N=50]	(2)	20	22.75	455.00
Course designer – Importance	(1)	31	31.26	969.00
[N=53]	(2)	22	21.00	462.00
Knowledge expert – Importance	(1)	31	26.66	826.50
[N=52]	(2)	21	26.26	551.50
Researcher – Importance	(1)	31	25.77	799.00
[N=52]	(2)	21	27.57	579.00
Teacher – Importance	(1)	31	27.23	844.00
[N=53]	(2)	22	26.68	587.00
Consultant – Importance	(1)	29	26.50	768.50
[N=51]	(2)	22	25.34	557.50
Counsellor – Importance	(1)	31	29.60	917.50
[N=53]	(2)	22	23.34	513.50

The Mann-Whitney test (via tables 4 and 5) indicates that the female Science lecturers (*Mdn* = 5) regard the fulfilment of the **course designer** role significantly (at the 99% confidence level) more important than their males counterparts (*Mdn* = 4), $U = 209.0$, $p = .005$. Cohen's effect size (r = .36) is in the medium to high interval (Milencović, 2011:77), which implies that the finding also has moderate (to high) practical significance.

3.2.3 Gender-specific views on role competence

The ratings of female compared to male academics in respect of their perceived competence in fulfilling of each of eight lecturer roles are indicated in table 6. The table portrays the combined number and percentage of males and females, who have respectively selected 'higher' competency ratings per role (a **4** (*competent*) or a **5** (*very competent*)).

TABLE 6: GENDER DIFFERENCES IN RESPECT OF ROLE COMPETENCE

First year lecturer roles	Competent and Very competent ratings combined								
	Females			Males			All participants		
	n (of N)	%	Mean	n (of N)	%	Mean	n (of N)	%	Mean
Manager	23 (of 30)	76.7	4.10	10 (22)	45.5	3.46	33 (52)	63.5	3.83
Team worker	25 (30)	83.3	4.07	15 (20)	75.0	3.85	40 (50)	80.0	3.98
Course designer	24 (30)	80.0	4.17	14 (22)	63.6	3.73	38 (52)	73.1	3.98
Knowledge expert	24 (30)	80.0	4.17	17 (21)	81.0	4.05	41 (51)	80.4	4.12
Researcher	14 (30)	46.7	3.67	14 (21)	66.7	3.71	28 (51)	54.9	3.69
Teacher	28 (30)	93.3	4.50	15 (22)	68.2	4.05	43 (52)	82.7	4.31
Consultant	23 (28)	82.1	4.11	10 (22)	45.5	3.55	33 (50)	66.0	3.86
Counselor	25 (30)	83.3	4.17	14 (22)	63.3	3.82	39 (52)	75.0	4.02

To a large extent, participants regarded themselves as competent to very competent in fulfilling the eight roles. Their competence in accomplishing the roles of *teacher*, *knowledge expert* and *counselor* (acting as a tutor and adviser to students, motivating and energising them, listening to them and providing them with 'tell-me-what's-on-your-mind' opportunities) were more favourably judged. Their perceived ability to fulfill the roles of *researcher* (performing disciplinary research, and acting as investigator, reflector, creator and communicator), *manager* (setting objectives, procedures and rules for educational and administrative activities) and *consultant* (who make students feel comfortable and are there for them, when needed) were rated at a lower level of proficiency. Just more than half of the participants regarded themselves a competent researchers, which points to a professional development need.

The mean competency ratings of females were 4 or higher in respect of seven of the roles, with their perceived *researcher* competence the not entirely unexpected exception. Less than halve of the females considered their research ability as competent. Males were a little less self-assured in the rating of their competencies; with a mean score of 4 or higher only applicable to the execution of the *teacher* and *knowledge expert* roles. The self-perceived competency of males in respect of the execution of the *manager*, *consultant*, *researcher* and *course designer* roles were judged to be at a marginally lower level. These views, especially those related to the *manager* and *consultant* roles, where less than half of them considered themselves as competent, put a number of capacity building challenges on the table for the Faculty's First Year Academy.

3.2.4 Testing for significant differences in gender-specific perceptions of role competency

The Mann-Whitney U test was also used to analyse differences between the medians of female and male responses for role **competency**, in respect of all eight roles. Tables 7 and 8 present the *test statistics* and *ranks*, with gender as grouping variable.

TABLE 7: TEST STATISTICS[a] IN RESPECT OF ROLE COMPETENCY

	Manager	Team worker	Course designer	Knowledge expert	Researcher	Teacher	Consul-tant	Counselor
Mann-Whitney U	205.500	232.500	244.000	287.500	295.000	231.500	188.000	268.000
Wilcoxon W	458.500	442.500	497.000	518.000	760.000	484.500	441.000	521.000
Z	-2.416	-1.487	-1.704	-.578	-.399	-1.988	-2.492	-1.219
Asymp. Sig. (2-tailed)	.016[b]	.137	.088	.564	.690	.047[b]	.013[b]	.223
Exact Sig. (2-tailed)	.017[b]	.139	.101	.607	.693	.044[b]	.011[b]	.236
Exact Sig. (1-tailed)	.008[c]	.076	.047[b]	.297	.341	.026[b]	.006[c]	.116

a: Grouping Variable: Gender **b:** Significant at 95% confidence level **c:** Significant at 99% confidence level

TABLE 8: RANKS IN RESPECT OF ROLE COMPETENCY

Role feature	Gender	N=	Mean Rank	Sum of Ranks
Manager – Competency [N=52]	Female (1)	30	30.65	919.50
	Male (2)	22	20.84	458.50
Team worker – Competency [N=50]	(1)	30	27.75	832.50
	(2)	20	22.13	442.50
Course designer – Competency	(1)	30	29.37	881.00

[N=52]	(2)	22	22.59	497.00
Knowledge expert – Competency	(1)	30	26.93	808.00
[N=51]	(2)	21	24.67	518.00
Researcher – Competency	(1)	30	25.33	760.00
[N=51]	(2)	21	26.95	566.00
Teacher – Competency	(1)	30	29.78	893.50
[N=52]	(2)	22	22.02	484.50
Consultant – Competency	(1)	28	29.79	834.00
[N=50]	(2)	22	20.05	441.00
Counsellor – Competency	(1)	30	28.57	857.00
[N=52]	(2)	22	23.68	521.00

The Mann-Whitney test indicated that female Science lecturers regarded their competencies significantly higher than their male counterparts, in fulfilling the roles of:

- **manager** (female *Mdn* = 4 vs. male *Mdn* = 3), $U = 205.5$, $p = .008$ (at the 99% level of confidence), $r = .34$ (a finding with moderate to high practical significance);
- **course designer** (female *Mdn* = 4 vs. male *Mdn* = 4), $U = 244.0$, $p = .047$ (at the 95% level of confidence), $r = .24$ (a finding with low to moderate practical significance);
- **teacher** (female *Mdn* = 5 vs. male *Mdn* = 4), $U = 231.5$, $p = .026$ (at the 95% level of confidence), $r = .28$ (a finding with low to moderate practical significance); and
- **consultant** (female *Mdn* = 4 vs. male *Mdn* = 3), $U = 188.0$, $p = .006$ (at the 99% level of confidence), $r = .35$ (a finding with moderate to high practical significance).

3.3 Empirical synthesis

The empirical investigation among the 53 first year Science lecturers generated the following noteworthy findings:

- **Role importance** (whole group): The *teacher* and *knowledge expert* roles were judged by most, and the *consultant* role by least participants as important.
- **Role importance** (females versus males): Both genders attached most importance to their *teacher* roles, with females considering their *course designer* role as second in importance, while males attached least importance to it. The difference in gender perceptions of the course designer role was found to be statistically significant at the 99% level of confidence, with a moderate to high level of practical significance.

- **Role competency** (whole group): Their ability to fulfill the *teacher*, *knowledge expert* and *counselor* roles was judged more favourably than their perceived ability to fulfill the *researcher*, *manager* and *consultant* roles.
- **Role competency** (females versus males): Females regarded their competencies significantly higher than their males counterparts, in fulfilling the roles of *course designer*, *teacher*, *manager* and *consultant* (the former two at the 95% and the latter two at 99% level of confidence, with moderate to high levels of practical significance.)

4. IN CONCLUSION

The self-perceived roles and competencies in fulfilling these roles of Science lecturers at the University of Johannesburg, who teach to first year students, are the focus of this paper. The Faculty of Science's First Year Academy initiated the research, believing that appropriate lecturer behaviour and expected competencies must be identified and developed if the Science Faculty continually wants to enhance the academic success of its growing number of transitional students. Student transition to higher education is an internationally renowned research topic, but relatively little is known about perceptions of academic staff who engage with transitional students, and whose traditional roles are thus also in transition. Lecturer perceptions in fulfilling eight roles were empirically interrogated. Gender was found to significantly influence their views and behaviours. Professional development geared at the more proficient execution of the roles of researcher, course manager and student consultant (all lecturers) and course designer (especially male lecturers) are important needs of this group of academics.

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