WEB PAPER

Caring for attitudes as a means of caring for patients – improving medical, pharmacy and nursing students’ attitudes to each other’s professions by engaging them in interprofessional learning

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Abstract

Introduction: Negative attitudes between pharmacists, doctors and nurses can impact adversely on patients’ medicines management. A seven-week interprofessional learning (IPL) intervention was delivered to foster positive attitudes.

Methods: First-year pharmacy, nursing and medical students’ attitudes were assessed using the Attitudes to Health Professionals Questionnaire before and after IPL intervention.

Results: Students viewed pharmacists, doctors and nurses as more ‘caring’ after IPL. Nurses were viewed as most ‘caring’. Nursing and pharmacy students perceived doctors as least ‘caring’ before and after IPL whereas medical students viewed pharmacists as least ‘caring’. Students perceived their own profession as more ‘caring’ than others did. The three-way analysis of variance showed a significant difference between student groups (p < 0.0001), professions (p < 0.0001) and before-and-after IPL (p < 0.005).

Conclusion: Findings suggest that students’ attitudes are more positive after they have worked together during seven weeks of IPL. Each student group view their own profession more positively than others. Views become more aligned after this IPL intervention. Time may be an important factor in allowing for attitudes to change. IPL can help foster positive attitudes between doctors, pharmacists and nurses, which may facilitate effective collaboration and thus enhance patients’ medicines management.

Introduction

According to a report by the World Health Organisation (WHO 2003), 50% of patients do not take of their medicines as prescribed. This contributes to poor patient outcomes and three hundred million annual wastage of medicines in the UK (York Health 2010). For optimal service delivery and safety in relation to patients’ medicines, pharmacists, doctors and nurses need to work effectively together. According to the literature, (Hughes & McCann 2003; Muijrers et al. 2003; Salter et al. 2007), healthcare professionals do not always work together effectively. This is often due to negative views between the different professions and thus calls for urgent action for enhanced interprofessional working and improved interprofessional attitudes. As a result, the working relationship between pharmacists, doctors and nurses – and how they view each other – has been the focus of increasing research (see San Martín-Rodríguez et al. 2005 for an overview; Dobson et al. 2006; Makowsky et al. 2009).

In relation to the nature of collaboration between pharmacists, doctors and nurses, most studies indicate that doctors – in particular general practitioners – rate their relationship with community pharmacists highly (BMA & NPA 2009). However, tensions between pharmacists, doctors and nurses have been reported (Makowsky et al. 2009), particularly where roles are new and evolving, for example, the rise of nurse-prescribers and medicines use reviews performed by pharmacists (Salter et al. 2007).

The perception of professional responsibilities, and thus ‘who should do what’ may originate from different attitudes towards different health professionals have been shown to impact on how teams work together and on the quality of patient care.

Using a validated questionnaire (AHPQ) this study measures the effectiveness of an IPL intervention for nursing, pharmacy and medical students.

Students develop more positive attitudes after completing this IPL intervention.

IPL may help improve patients’ medicines management by encouraging interprofessional collaboration future nurses, pharmacists and doctors being more willing to collaborate.

Practice points

- Attitudes towards different health professionals have been shown to impact on how teams work together and on the quality of patient care.
- Using a validated questionnaire (AHPQ) this study measures the effectiveness of an IPL intervention for nursing, pharmacy and medical students.
- Students develop more positive attitudes after completing this IPL intervention.
- IPL may help improve patients’ medicines management by encouraging interprofessional collaboration future nurses, pharmacists and doctors being more willing to collaborate.

However, tensions between pharmacists, doctors and nurses have been reported (Makowsky et al. 2009), particularly where roles are new and evolving, for example, the rise of nurse-prescribers and medicines use reviews performed by pharmacists (Salter et al. 2007). The perception of professional responsibilities, and thus ‘who should do what’ may originate from different

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philosophical approaches to education (Fitzsimmons & White 1997). Students entering their profession often have a strong desire to acculturate, e.g. to become part of their future profession. As a student prepares for their future professional role they begin to ‘feel’ like a member of that profession, a process considered to be an important part of a process of professional socialisation (Schwartz et al. 1987; Fitzpatrick et al. 1996; Howkins & Ewan 1999; Mann et al. 2005). However, it can be argued that professional identity needs to develop in parallel with students from other healthcare professions, also understanding how they will work effectively together with others when delivering care. As professional roles change and evolve, the challenge is for this to happen without diluting the professional integrity. Professional boundaries need to be clear, yet flexible, as agreed by members of the interprofessional team and thus the knowledge and skills available can be fully developed and utilised.

Studies have shown that students training to become pharmacists, doctors and nurses enter their courses with well-established attitudes about their own and other healthcare professions (Tunstall-Pedoe et al. 2003; Lindqvist et al. 2005a; Hearn et al. 2006a, b). It is thought that these attitudes, particularly if they are negative, may colour future interactions between professions (Pirrie et al. 1999; McDaiden et al. 2010). Interestingly, when asked to rate their attributes to others, individuals commonly rate their own profession higher than those belonging to another (Stathi & Crisp 2008). Such self-ratings are frequently influenced by self-serving biases (Eiser, 1997). One of the key factors shown to reduce self-bias to own group is the actual concept of similarity (Stathi & Crisp 2010). In other words, if people perceive others to be similar to them (e.g. because they belong to the same profession, or that they are involved in a particular aspect of care) they are more likely to share the same views and attributes as themselves, which may facilitate interactions between members of the same group. In contrast, people from other professions will be seen as different, which can lead to ‘tribalism’ between professions (Beattie 1995) and ineffective collaboration between groups.

Such differences may have developed as a result of professional socialisation (Schwertner et al. 1987; Fitzpatrick et al. 1996; Howkins & Ewan 1999; Mann et al. 2005). This reinforces the need to offer healthcare students opportunities to learn and work together from the outset and throughout their careers, to encourage the ongoing development of positive professional attitudes.

Different outcome measures have been used to assess students’ attitudes to different professions and how these change as a result of their involvement in the IPL, including the Measurement of Overall Attitude to Professional Group (Carpenter 1995a, b; Hean et al. 2006a) and the Attitudes to Health Professionals Questionnaire (AHPQ) (Lindqvist et al. 2005a; Jacobsen & Lindqvist 2009). In response to the on-going challenge to ensure that patients gain optimal benefit from their medication, this study aimed to focus on attitudes between students training to become pharmacists, doctors and nurses and how attitudes change when measured before and after a seven-week IPL intervention.

This paper will show findings from first-year students training to become pharmacists, doctors and nurses. The AHPQ was the favoured instrument as it has been used to assess attitudes among a large cohort of students, showing consistent findings – in particular in relation to the component assessing how ‘caring’ a profession is perceived to be (for more information see next section). Data will be shown of how ‘caring’ students perceive their own and the other two professions, before and after IPL. Findings will be discussed in relation to other studies and their potential impact on how these students will work together to optimise patients’ medication-taking behaviour.

**Methods**

All first-year healthcare students at a UK higher education institution participating in an IPL intervention were asked to complete the AHPQ at base-line, before and after the intervention. This particular IPL intervention involves first-year students from nursing, medicine, occupational therapy, pharmacy, midwifery and physiotherapy working together...
over seven weeks around a case scenario to prepare a care management plan (see Lindqvist et al. 2005b). The case scenario includes medicines management, but was not particularly focussed on this.

For the purpose of this paper, data shown are from pharmacy, medicine and nursing students only as we wanted to explore these students’ perceptions in more depth. Data are from the 2008–2009 student cohort. 325 medicine, pharmacy and nursing students were eligible to complete the AHPQ. They accessed the questionnaire online and completion was voluntary.

The development and validation of the AHPQ is described by Lindqvist et al. (2005a). In brief, the AHPQ contains 20 items, each consisting of two opposite attributes anchored to either end of a 10 cm visual analogue scale. Students score a ‘typical’ member of their own and three other professions (randomly mixed) on the scale for each of these items. The internal consistency for the 20 items was high (α > 0.86). Principal Components Analysis (PCA) showed that two main components emerged, which have been labelled as ‘caring’ and ‘subservient’. Table 1 shows the 13 items associated with the ‘caring’ component, which accounted for 39% of the total variance and with an internal consistency of α = 0.93. For this paper, we focussed on this component and thus on the data showing how ‘caring’ a ‘typical’ member of a profession is perceived to be.

Questionnaire data were downloaded using SPSS (version 16) and PCA scores calculated by adding students’ scores for each of the 13 items, multiplying each item using the weightings from the PCA presented previously (Lindqvist et al. 2005a and shown in Table 1). Scores were calculated for the three professions that we were interested in comparing: pharmacists, doctors and nurses – for each of the two occasions they completed the AHPQ.

Homogeneity of variances and the normality of the distribution were checked by calculating skewness and kurtosis. This showed that data were normally distributed and variances in the groups were similar, allowing for parametric methods to be used as outlined below.

A three-way analysis of variance was carried out to assess if there were any differences between the student groups, the professions and the IPL intervention. If significant differences were found at the 5% level from the analysis of variance, paired sample \( t \)-tests of the difference in before and after ‘caring’ scores of the seven-week IPL intervention for each profession were carried out across all student groups (Table 2) and within each of the three student groups (Table 3).

### Results

#### Response rate

A total of 186 first-year students completed the AHPQ before the seven-week IPL intervention (response rate 57%): 86 pharmacy, 100 medical and 53 nursing students. 76 completed the questionnaire both before and after IPL (response rate = 41%): 28 pharmacy, 33 medical and 15 nursing students.

Figure 1 summarises students’ views of a ‘typical’ pharmacist, doctor and nurse before and after IPL (one being their own profession), including all student scores across the three groups.

Summary statistics of the data are presented in Table 2 showing the views of each student group for each profession. The three-way analysis of variance showed a significant difference between the student groups \((p < 0.0001)\), between the professions \((p < 0.0001)\) and between the before-and-after IPL scores \((p < 0.005)\).

Results in Figure 1 and Table 2 illustrate that all student groups perceived these three professions as being more ‘caring’ after IPL. The ‘typical’ nurse was viewed as the most ‘caring’ by all student groups and the pharmacist as the least ‘caring’, when looking at all scores together before and after IPL. However, when looking separately at each group, both pharmacy and nursing students viewed the ‘typical’ doctor as the least ‘caring’ both before and after IPL, whereas the medical students viewed the ‘typical’ pharmacist as the least ‘caring’. The nursing students’ views of a ‘typical’ doctor deviated from the views of pharmacy and medical students. Pharmacy and medical students viewed their own profession similarly both before and after the IPL (Table 2).

Table 2 also shows that all groups viewed their own profession as being more ‘caring’ than the other two groups before and after the IPL. The least amount of variation in scores was observed when students were scoring their own profession (shown in bold). The pharmacy students’ views of a ‘typical’ pharmacist deviated from the views of nursing and medical students. Even if students’ perceptions changed after IPL, the relationship between how these three professions were viewed by each student group remained the same.

Table 3 shows the mean difference in scores before and after IPL, and the outcome of paired samples \( t \)-tests on the data to see whether there were significant changes in perceptions. All professions saw a statistically significant increase \((p < 0.01)\) in how ‘caring’ they were perceived to be by all students after IPL. The greatest change was observed in nursing students’ views of a ‘typical’ pharmacist 13.84. Despite a great variation in responses (95% CI, 6.24 to 21.43), the change was shown to be significant \((p < 0.0012)\). The smallest changes were observed when looking at students’ perceptions of a ‘typical’ nurse.

### Table 1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Component loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring/non-caring</td>
<td>0.872</td>
</tr>
<tr>
<td>Empathetic/non-empathetic</td>
<td>0.839</td>
</tr>
<tr>
<td>Approachable/non-approachable</td>
<td>0.833</td>
</tr>
<tr>
<td>Values team work/dos not value team work</td>
<td>0.823</td>
</tr>
<tr>
<td>Sympathetic/non-sympathetic</td>
<td>0.816</td>
</tr>
<tr>
<td>Thoughtful/not thoughtful</td>
<td>0.782</td>
</tr>
<tr>
<td>Flexible/not flexible</td>
<td>0.791</td>
</tr>
<tr>
<td>Patient-centred/not patient-centred</td>
<td>0.755</td>
</tr>
<tr>
<td>Not self-centred/self-centred</td>
<td>0.733</td>
</tr>
<tr>
<td>Gentle/rough</td>
<td>0.673</td>
</tr>
<tr>
<td>Not arrogant/arrogant</td>
<td>0.587</td>
</tr>
<tr>
<td>Practical/theoretical</td>
<td>0.545</td>
</tr>
<tr>
<td>Conciliatory/not conciliatory</td>
<td>0.533</td>
</tr>
</tbody>
</table>
Looking at all students together, the pharmacist saw the greatest increase in ‘caring’ scores from other students, with an improvement of 5.77 (95% CI, 3.11 to 8.4), followed by doctors with an increase of 4.87 (95% CI, 2.87 to 6.87) and then by nurses with an increase of 2.15 (95% CI, 0.917 to 3.39).

Although both pharmacy students and nursing students viewed the ‘typical’ doctor as more ‘caring’ after IPL 5.75 (95% CI, 2.29 to 9.22) and 5.62 (95% CI, −1.01 to 12.25), only the pharmacy students’ views of a doctor was significant (p < 0.0025); the change observed in nursing students’ views was not significant (p = 0.0918).

The pharmacy students perceived all professions as more ‘caring’ after IPL (p < 0.05), whereas the medical students only perceived the ‘typical’ doctor to be significantly more ‘caring’ after IPL (p < 0.0001).

### Discussion

Results of this study confirm previous findings that first-year medical, pharmacy and nursing students come to higher education with different views of ‘typical’ members of these three professions. Students’ views change and appear more

<table>
<thead>
<tr>
<th>Table 2. Summary statistics of PCA scores before and after the seven-week IPL intervention. Numbers in bold shows student groups’ view of their own profession.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
</tr>
<tr>
<td><strong>Profession</strong></td>
</tr>
<tr>
<td><strong>Pharmacist</strong></td>
</tr>
<tr>
<td><strong>Student group</strong></td>
</tr>
<tr>
<td>Pharmacy</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>Mean PCA</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>Medical</td>
</tr>
<tr>
<td>Missing</td>
</tr>
<tr>
<td>Mean PCA</td>
</tr>
<tr>
<td>SD</td>
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<tr>
<td>Nursing</td>
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<tr>
<td>Missing</td>
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<tr>
<td>Mean PCA</td>
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<tr>
<td>SD</td>
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<tr>
<td>All</td>
</tr>
<tr>
<td>Missing</td>
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<tr>
<td>Mean PCA</td>
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<tr>
<td>SD</td>
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<table>
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<th>Table 3. Paired samples t-test on mean difference perception scores.</th>
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<tr>
<td><strong>Profession</strong></td>
</tr>
<tr>
<td>Pharmacy students</td>
</tr>
<tr>
<td>Pharmacist</td>
</tr>
<tr>
<td>Doctor</td>
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<tr>
<td>Nurse</td>
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<td>Nurse</td>
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<td>Pharmacist</td>
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<td>Doctor</td>
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<td>Nurse</td>
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<tr>
<td>Nursing students</td>
</tr>
<tr>
<td>Pharmacist</td>
</tr>
<tr>
<td>Doctor</td>
</tr>
<tr>
<td>Nurse</td>
</tr>
<tr>
<td>All students</td>
</tr>
<tr>
<td>Pharmacist</td>
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<tr>
<td>Doctor</td>
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<td>Nurse</td>
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</table>
positive’ after they have worked together during the seven-week IPL intervention. Interesting observations are made about how these students perceive a member of their own profession as being more ‘caring’ than do those from other professions. These findings contribute to our knowledge of professional attitudes, that they can change and how they change in response to one particular IPL intervention. Improved perceptions between nursing, medical and pharmacy students may play an important role in cultivating future collaborative working around patients’ medicines.

Table 2 and Figure 1 show data that confirm earlier findings that medical, pharmacy and nursing students enter higher education with different views of ‘typical’ members of these three professions (Hind et al. 2003; Tunstall-Pedoe et al. 2003; Lindqvist et al. 2005a; Hean et al. 2006a). Hean and colleagues (2006a) present data using different characteristics for these professions and others, including their ‘inter-personal skills’ and their ability to be a ‘team player’. The AHPQ, used in this study, includes similar aspects to these characteristics within the ‘caring’ component (Table 1). Consistent with the findings presented here, Hean et al. (2006a) showed that doctors and pharmacists scored lower in relation to their ‘caring’ qualities whereas the nurses scored highest, which resonates with earlier studies found in the literature (Hind et al. 2003; Tunstall-Pedoe et al. 2003; Lindqvist et al. 2005). Although the pattern between professionals remains the same following this IPL intervention, this study shows that students perceive a ‘typical’ member of these three professions as being more ‘caring’ after they have worked together for seven weeks. This supports findings by Ateah et al. (2011), who presented a paper following a study including pharmacy, nursing and medical students showing that an IPL intervention in the classroom setting, allowing these students to address their roles within the healthcare team, led to students developing more positive attitudes towards each other’s professions. However, as reported by Tunstall-Pedoe and colleagues (2003), care needs to be taken when planning an IPL intervention in order to ensure favourable outcomes. Also, it is important to understand how attitudes change within each student group as they participate in IPL (Table 3).

The changing of attitudes towards other healthcare professionals is one of the key learning outcomes for IPL interventions (Barr et al. 2005). As healthcare roles are rapidly evolving, with nurses and pharmacists taking on tasks traditionally completed by doctors, such as the prescribing of medicines, students may, at the outset of their training not be aware of this – especially concerning developments in professions other than their own. Instead, students’ attitudes are likely to be based on traditional values and views about the professional roles and what a ‘typical’ nurse, pharmacist and doctor is like. Results presented in this study may reflect this in the differences observed between how the student groups view these three professions before IPL (Table 2).

In their article, Hean et al. (2006a) discuss the importance of recognizing that professional groups have similarities as well as differences and how these may help, or hinder, collaborative interactions. Their results show that pharmacists and doctors score similarly across the different professional characteristics and although it seemed at first that this would be the case here also, the findings of this study show a
different relationship. The whole cohort of students view
the pharmacist as least ‘caring’, but when looking more closely
at these data, it becomes clear that this is mainly because
pharmacy students perceive the ‘typical’ doctor and nurse
as much more ‘caring’ than medical and nursing students
perceive the ‘typical’ pharmacist to be (Table 2).

Interestingly, the medical students view a ‘typical’ doctor as
being more ‘caring’ than the nursing and pharmacy students
do (Table 2). Likewise, the pharmacy students see a ‘typical’
pharmacist as far more ‘caring’ than medical and nursing
students do (Table 2). In fact, each student group perceive
a ‘typical’ member of their own profession as more ‘caring’
than the other two professions and thus favour their own
group, as also discussed by Stathi and Crisp (2008). These
results imply that there is an imbalance of views, which may
stem from real, or perceived, conceptions about doctors’,
nurses’ and pharmacists’ roles in managing patients’ medica-
tion and the need for collaboration between these three
professions.

Findings from the analysis of mean difference scores also
suggest that some student groups are more susceptible to
change than others (Table 3). The nursing students, in
particular, show signs of changing their views about the
‘typical’ doctor and pharmacist, although there is also a great
variation within the same group. In providing IPL opportu-
nities it is important to recognise these differences in
perceptions and therefore allow students to work together,
from the outset (Pollard & Miers 2008), in the right setting
(Brown & Hewston 2005) and be supported by trained
facilitators so that the anticipated learning outcomes can be
achieved (Freeman et al. 2010).

Nursing, as a profession, has placed caring at the center and
has used the concept of caring as a way of challenging and
differentiating itself from the hitherto dominant medical
profession. This challenge, as Paley terms it ‘slave revolt’, to
the medical hierarchy has remained at the heart of nursing
theory and practice (Paley 2002). Perhaps the findings
presented here are a consequence of historical tensions
between these professions, where both nurses and pharma-
cists have been reported to sometimes feel undervalued by
doctors (Carpenter 1996; Salter et al. 2007). Should this be true,
from both perspectives, then it is understandable why these
professionals may find it challenging to reach the expected
outcomes in relation to patients’ medication and together
address the issue of wastage of medicines. However, if an IPL
intervention can help reduce the gap between perception of
the ‘own group’ and how others perceive them – by viewing
all as more ‘caring’ – this may contribute to reducing the bias
within ‘own groups’, and; prejudice towards other professional
groups and leading to more effective collaborative practice
and service delivery. Whether this is the case or not remains to
be explored by further rigorous research in this area so that
educators and practitioners can improve their understanding
of the links between professional attitudes, IPL interventions,
collaborative practice and patient outcomes. Nurses rely on
nurses, doctors and pharmacists giving them optimal and
appropriate medication. Therefore, HEIs have a responsibility
to lay the foundation for future healthcare professionals to be
adequately prepared and equipped.

There are some limitations to this study that are important
to note. Although time has a clear effect on changing
perceptions, this study does not allow us to state categorically
that IPL is the cause. That said unpublished data over the past
eight years show these findings to be consistent, so we are
confident that what we observe is real, that these differences in
perceptions exist and that they change during the IPL. We are
in the process of analysing data from a control group in order
to further decipher the impact of IPL. Another limitation of this
study is that the completion of the AHQP was voluntary and
thus results are not necessarily representative of the whole
cohort. Only 23% of students participating in IPL completed
the AHQP on two occasions, therefore a cautious approach
needs to be taken before making generalisations.

Conclusion

IPL between nursing, pharmacy and medical students can help
develop more positive attitudes to these three professions.
Early exposure can help students understand their respective
roles as individual professionals and how each can contribute
to patients’ medicines management. It is important to try to
measure the impact of IPL on attitudes so that educational
interventions are planned in the most effective way, allowing
students to develop their own professional identity as well as
the knowledge, skills, attitudes and behaviour that will
facilitate future collaboration.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content
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References

Atecha CA, Snow W, Werner P, MacDonald P, Metgeee C, Davis P, Frische M,
Ludwig S, Anderson J. 2011. Stereotyping as a barrier to collaboration:
Does interprofessional education make a difference? Nur Educ Today
31:208–213
interprofessional education: Argument, assumption and evidence.
Oxford: Blackwell Publishing.
Beattie A. 1995. War and peace among the health tribes. In: Soothill K,
Mackay I, Webb C, editors. Interprofessional relations in health care.
Improving communication between community pharmacy and general
In: Zanna M, editor. Advances in experimental social psychology,


