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S Agnes Daney Angela

Assistant Professor, Department of Fisheries Extension, Economics and Statistics, Dr. M. G. R. Fisheries College and Research Institute, Ponneri Tamil Nadu Dr. J. Jayalithaa Fisheries University, Nagapattinam, Tamil Nadu, India

C Lloyd Chrispin

Assistant Professor, Department of Fisheries Extension, Economics and Statistics, Dr. M. G. R. Fisheries College and Research Institute, Ponneri Tamil Nadu Dr. J. Jayalithaa Fisheries University, Nagapattinam, Tamil Nadu, India

Corresponding Author:**S Agnes Daney Angela**

Assistant Professor, Department of Fisheries Extension, Economics and Statistics, Dr. M. G. R. Fisheries College and Research Institute, Ponneri Tamil Nadu Dr. J. Jayalithaa Fisheries University, Nagapattinam, Tamil Nadu, India

Role of non-technical skills in fisheries and aquaculture employment: Students' perspective

S Agnes Daney Angela and C Lloyd Chrispin

Abstract

Non-Technical Skills (NTS) are interpersonal skills. NTS are assumed to be resting with families and schools rather than professional educational institutes which is not true and non-technical competence have to be taught or at least improved upon in professional institutes as studies indicate that the absence of NTS can actually affect the performance. Another important aspect to imparting NTS by Institutes or Universities is the perception of Students towards acquiring these NTS, how far they are sensitized by the importance of these skills in their employability. Firstly, the importance of Non-technical skills on par with the technical skills in the perspective of employability needs to be sensitized among the students, teachers and decision-makers in the Fisheries Education system. Time is not far where any sector including Fisheries and Aquaculture would be solely dependent on Artificial intelligence, machine learning, data analytics, Internet of Things and so on. Therefore, it is wise to impart such futuristic skills and also other Non-technical skills in students to make them competent and also to improve the employability.

Keywords: Non-technical skill, fisheries, aquaculture, university, education, employability

Introduction

Non-Technical Skills ('NTS') are skills which include communication skills; leadership skills; team-work skills; decision-making skills; and situation-awareness skills. They do not include the technical skills required to get the job done e.g. the technical skill or know-how to operate a machine or conduct a certain operation. However, they complement these technical skills making them more efficient and effective. As indicated by Sharmila M (2013) ^[1] 'The generic skills have in recent times gained in significance due to the growing industry demand for it in the changing milieu'

In the Fisheries and aquaculture sector which records an annual average growth rate of 14%, there is no doubt an obvious increase in technology and expertise and therefore employment. But the Non-technical professional skills, often referred as the people skills have not kept the pace. An increasing body of literature suggests that professional skills such as relationship building, communication, leadership, self-management and business acumen are sufficiently lacking that the growth potential and level of satisfaction of any professional may be threatened as mentioned by Burns *et al.* (2018) ^[2] in their study on Teaching Non-technical (Professional) competence in a veterinary school curriculum.

But, often the responsibility of imparting NTS are assumed to be resting with families and schools rather than professional educational Institutes which is not true and non-technical competence have to be taught or at least improved upon in professional institutes as the studies indicate that the absence of NTS can actually affect the performance.

The fifth Deans' committee of the Agricultural Education Division of ICAR has suggested that in view of the increasing importance of graduates' employability, students of all disciplines (including Fisheries) need to be taught the course "Communication and Personality Development" (Fifth Deans' Committee report, 2017) ^[3] Now that the Professional Institutes are geared up for imparting few of the Non-Technical Skills, it becomes essential to study the students' perspective towards NTS so as to ensure future growth and development.

Another important aspect to imparting NTS by Institutes or Universities is the perception of Students towards acquiring these NTS, how far they are sensitized by the importance of these skills in their employability. According to Pita *et al.* (2015) ^[4], student and graduate respondents recognized that learning of skills had taken place if such learning was formally identified as part of the curriculum, e.g. as an explicitly identified learning outcome of

knowledge-based module(s) or as a separate module.

University graduates seeking employment or currently employed in aquaculture, fisheries sectors will increasingly need a wider set of generic skills in order to increase their job opportunities, maintain employability and facilitate mobility between jobs and countries. It is therefore timely to examine experiences, attitudes and perceptions of generic skills training needs and provision for graduate employment in the aquaculture, fisheries and aquatic resources-related sectors (Pita *et al.* 2015) ^[4].

Hence this study was carried out to understand the student's perspective of Non-technical skills with respect to their employability. This study was conducted to analyze the perception of students about the importance of NTS in their employability.

Methodology

An online questionnaire was developed in consultation with the social scientists and was sent to 223 students of PG, PhD and third year, fourth year in the fisheries colleges of Tamil Nadu. After two reminders, a total of 49 students responded. And their responses were analyzed to establish the relations & results. The quantitative results are represented by graphs and pie charts. The qualitative analysis was done by Narrative research.

Results and Discussion

Out of the total respondents, 46.9% were female students and 53.1% were male students (Fig 1). The results are given in graphical representation in Fig 2 representing the perceived degree of importance for each item of the study (Items a and b refer to the technical skills and all the other items are related to Non-Technical Skills) by the students. The higher the score the greater is the perceived importance

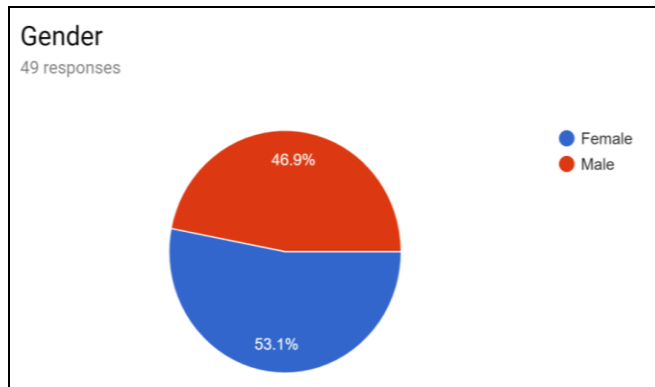
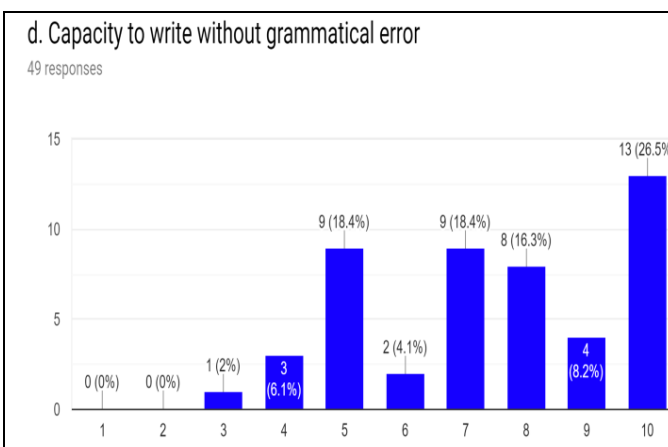
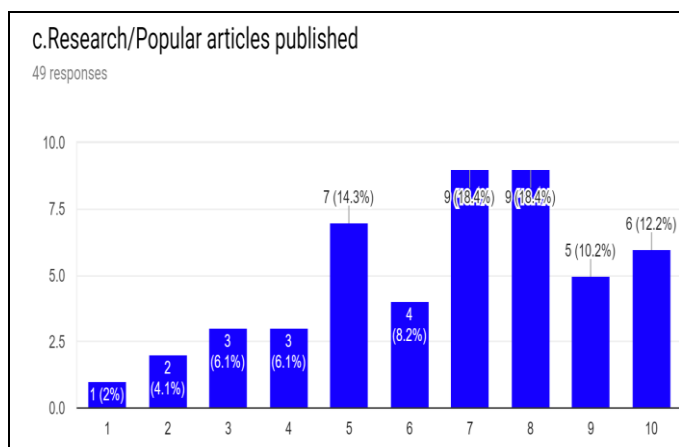
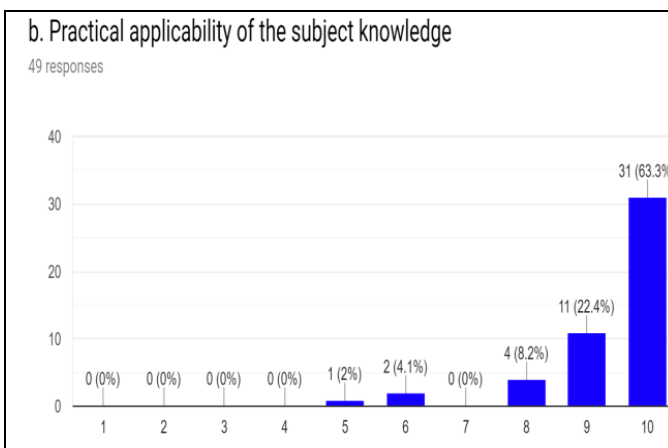
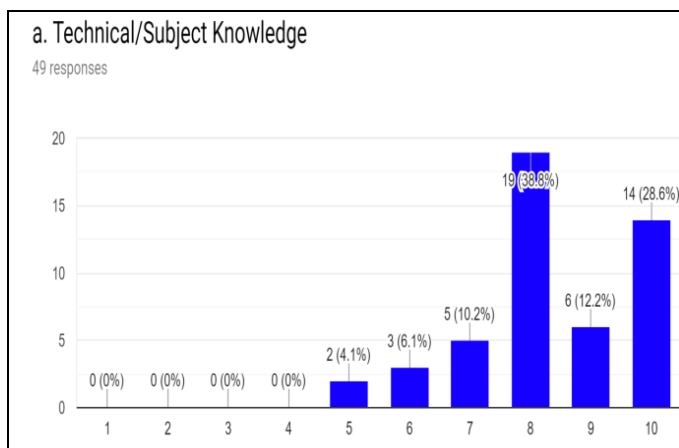
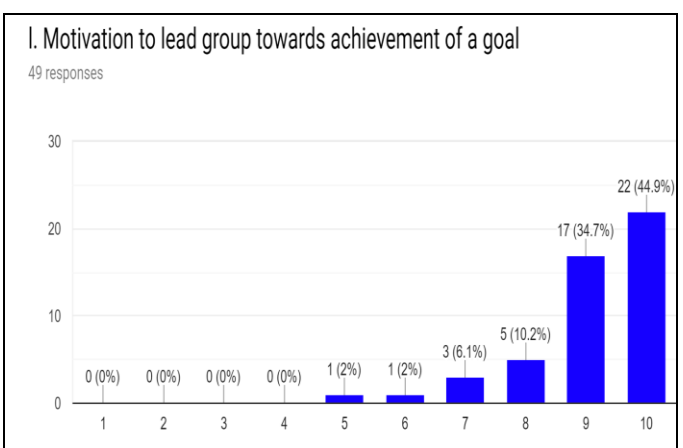
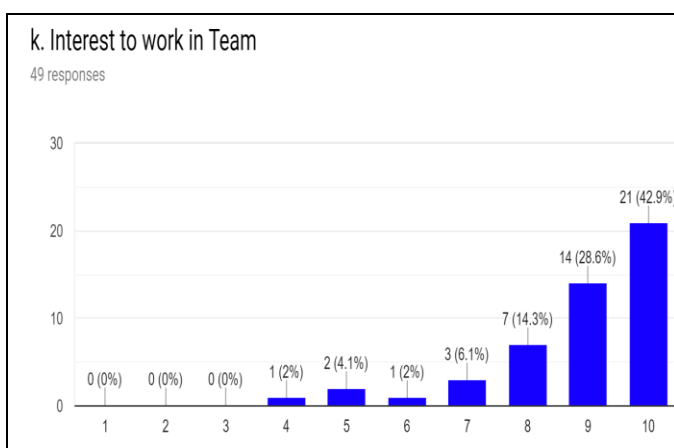
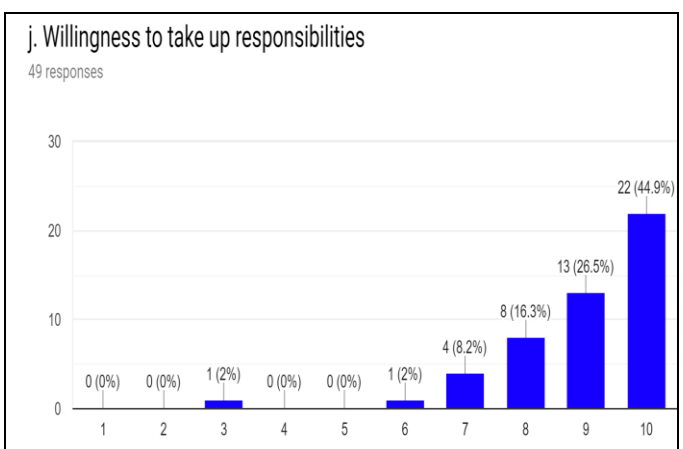
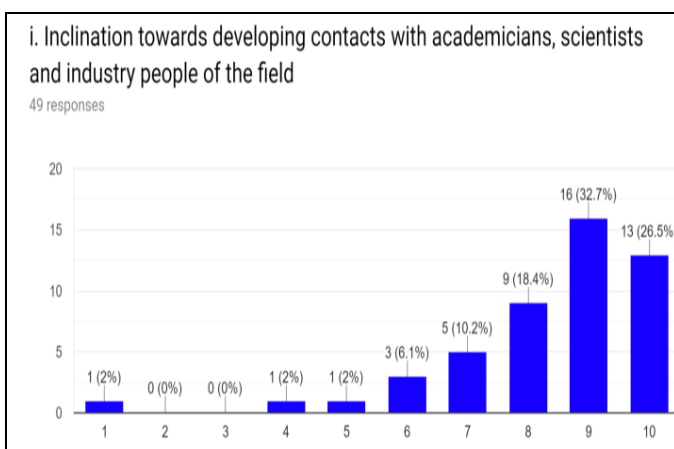
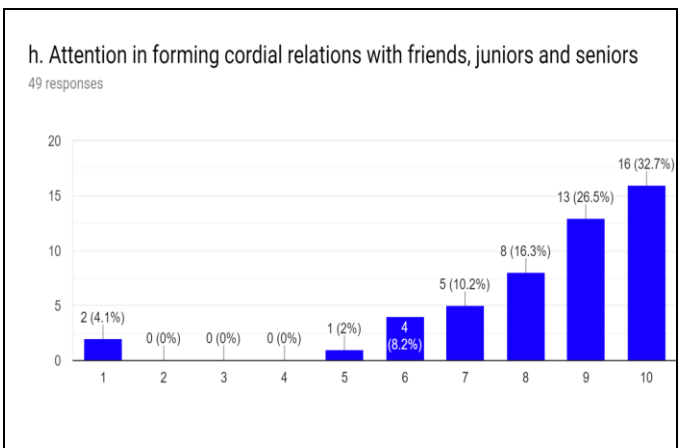
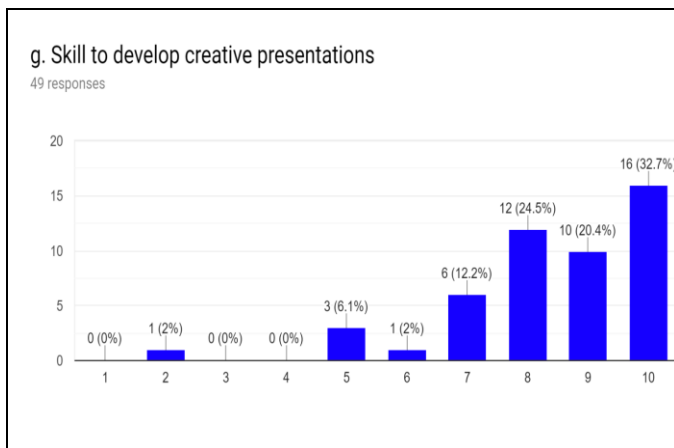
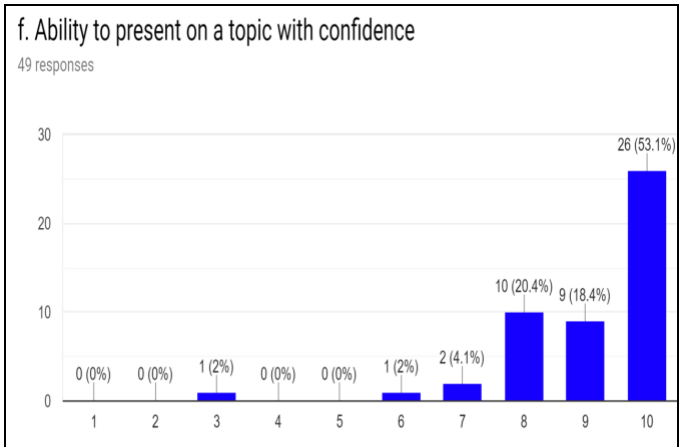
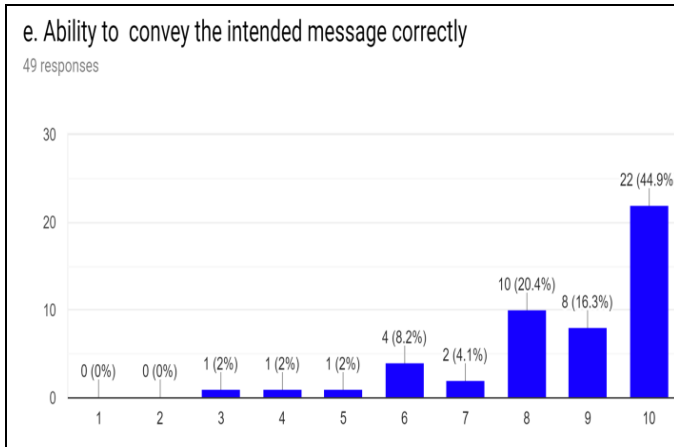


Fig 1. Gender-wise distribution of sample





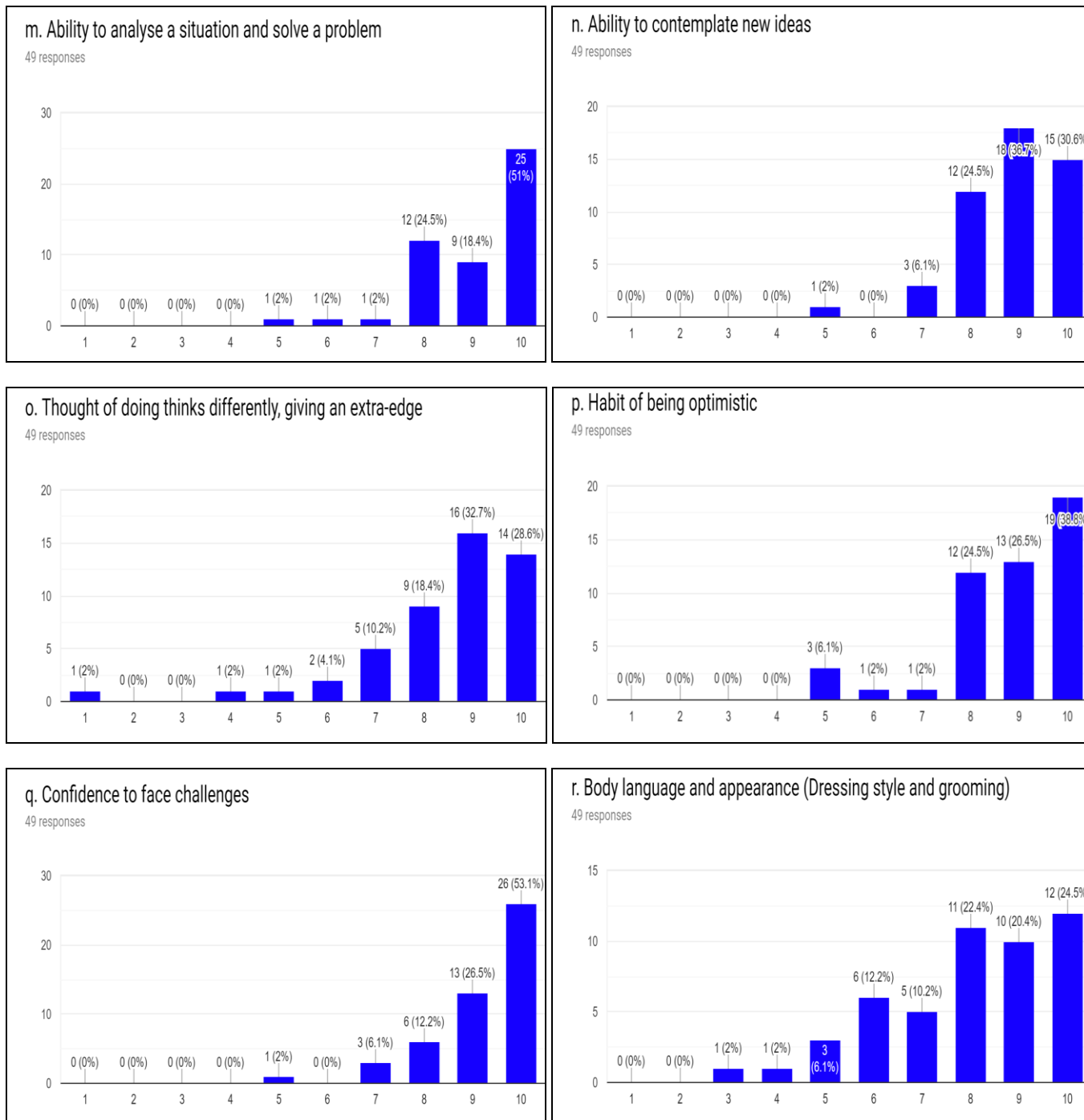


Fig 2: Item-wise perceived importance

Table 1: Statements ranked based on the Avg. score

Items ranked from highest to lowest score	Statement	Avg Score	Rank
b	Practical applicability of the subject knowledge	9.346939	1
q	Confidence to face challenges	9.204082	2
l	Motivation to lead group towards achievement of a goal	9.081633	3
m	Ability to analyze a situation and solve a problem	9.081633	4
f	Ability to present on a topic with confidence	9.061224	5
j	Willingness to take up responsibilities	8.938776	6
n	Ability to contemplate new ideas	8.857143	7
k	Interest to work in Team	8.836735	8
p	Habit of being optimistic	8.795918	9
e	Ability to convey the intended message correctly	8.612245	10
o	Thought of doing things differently, giving an extra-edge	8.428571	11
g	Skill to develop creative presentations	8.387755	12
a	Technical/Subject Knowledge	8.346939	13
i	Inclination towards developing contacts with academicians, scientists and industry	8.346939	14

	people of the field		
h	Attention in forming cordial relations with friends, juniors and seniors	8.306122	15
r	Body language and appearance (Dressing style and grooming)	7.979592	16
d	Capacity to write without grammatical error	7.44898	17
c	Research/Popular articles published	6.632653	18

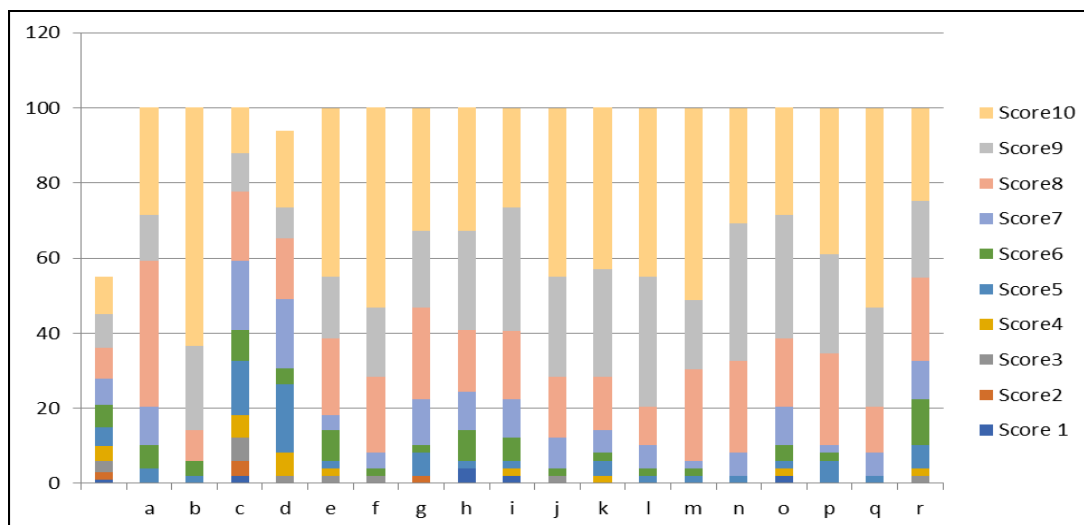


Fig 3: Cumulative perceived importance of the items

It can be observed from the Table 1 that one of the technical skills item (b) has been ranked as one and the other technical skills item (a) has been ranked 13 out of the 18 items, which indicates that students have scored the statements objectively and that they perceive application of knowledge learnt as a top priority for their employability. Fugate *et al.* (2004) [5] suggest that employability means adaptability which is represented in three dimensions namely, career identity, personal adaptability and social and human capital. Further, from the Table 1, it can be seen that confidence, leadership, problem-solving, presenting skills, accountability, creativity, Team work, optimism, communication, uniqueness, computer skills, relationship building, Non-verbal communication and written communication skills items are ranked in order. Kirves K *et al.* (2013) [6] in their study have found that optimism was positively related to perceived employability and that it is equally beneficial for all employees, be it temporary or permanent. In a study conducted among engineering students, Sekar V (2015) [7] has found that ‘the overall performance of engineering student’s skills for rural areas is poor, the main reason is lack of communication skills, problem solving skills, self management skills’. However, it can be inferred from Fig 3, that the items which have more importance spread, that is those having been scored from 8 to 10, are m,b,f,q,p which means problem solving, practical applicability, confidence and optimism are considered to be highly important skills by the students. The results (Fig 4) also show that 67.3% of the respondents have felt that the education system imparts Non-technical Skills also. The non-agreement by the 32.7% may indicate that though the non-technical skills are existing in the syllabus and being imparted by the teachers, it is not given much importance or credit that actually has to be given. The results of the study on employability skills of MBA students in engineering colleges show that irrespective of various personal variables of students, most of the students indicated that they need more of training in future in order to develop their employability skills. (Sokkalingam S.R.M, 2014) [8]

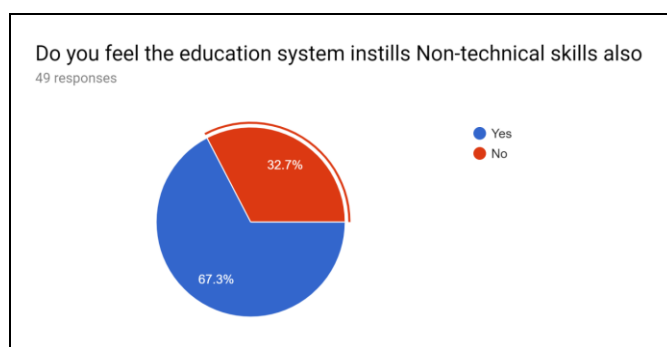


Fig 4: Students’ perception of NTS being instilled by the education system

The figure 5 clearly indicates that the students strongly perceive that Non-Technical skills are important for employability or rather more important than the technical skills. School Education in Non- English Medium is a major disadvantage in the acquisition of high levels of skills required for employability of students’ as indicated by the study on employability skills of students of Arts and Science colleges in the University of Madras area conducted by Archana Prasad K (2013) [9] This clearly means that the colleges have to shoulder the responsibility of incorporating necessary Non-technical skills so as to increase the employability scope for the students. Hence, it is high time the non-technical skills be scrupulously involved in all Professional Educational programmes, needless to mention in Fisheries Education also. The study conducted by (Kumaran and Anand, 2016) [10] found that outgoing fisheries graduates had moderate level of entrepreneurship motivation, low level of risk taking, self-efficacy and locus of control and recorded that they need to have confidence, positive attitude, proficiency in subject and entrepreneurial qualities to excel in their chosen career.

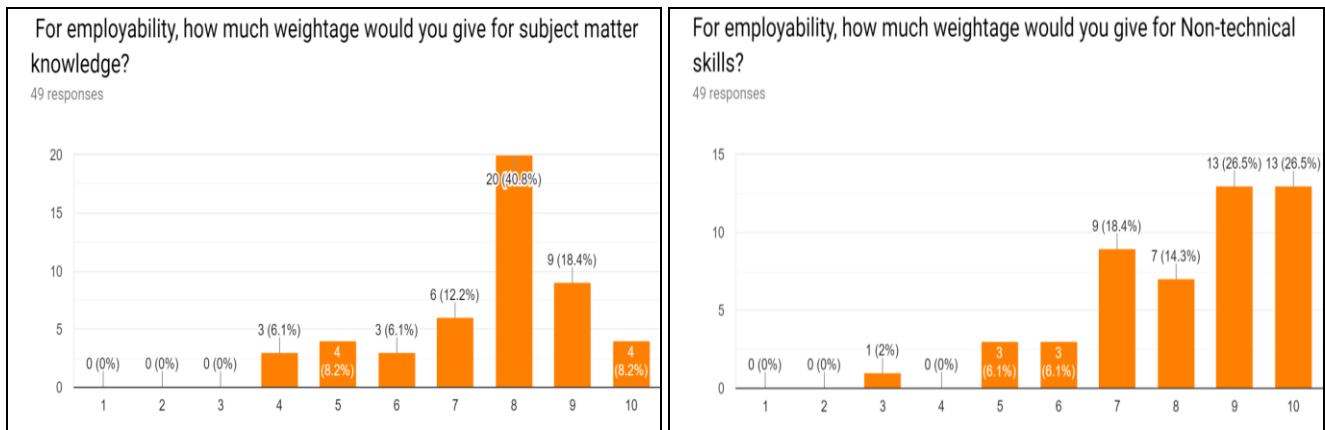


Fig 5: Comparison of Students' perception on subject matter knowledge and NTSS with respect to employability

According to (Kim, 2010) [11], the employability skills domain consisted of five sub-domains: 1) Communication skills; 2) Resource-application skills; 3) Problem-solving skills; 4) Interpersonal skills; and 5) Change-management skills. According to (Pita *et al.* 2015) [4], Constant changes in society and in the domain of aquaculture, fisheries and related marine sector jobs will force future professionals into new roles and the development of new competencies. The rapidly evolving world of IT creates new skills requirements, new opportunities for communication and indeed new ways of working and learning. New challenges for future employees in the marine sector include increasing workload, information overload and rise in complexity (of data collection, data analysis, interpretation, etc.). These changes highlight the needs for training in IT skills, time management and data management, as well as the need for training in communication skills, and indeed the methods employed for teaching and learning, to keep pace with technology.

The answers by the students for the question 'what are all the Non-Technical skills they think they need to develop in order to make them employable', more than 78% of them have said that improvement in communication skills and confidence. Many of them have also mentioned leadership skills as well as the ability to work in teams. This implies that Communication skills improvement in students is the immediately necessary skill that needs to be imparted and in turn, it may also build the confidence and ability to work in teams. But, it is not the end as other non-technical skills such as computer skills to integrate Artificial intelligence and Internet of things in the respective profession of aquaculture and Fisheries is gaining momentum. Therefore it is highly important on the part of the policy/decision-makers to make constant efforts to identify the NTS needed for the employability of graduates and include them in the curriculum for enabling the students/graduates to perform well for the development of the Fisheries and Aquaculture sector

Conclusion

Firstly, the importance of Non-technical skills on par with the technical skills in the perspective of employability needs to be sensitized among the students, teachers and decision-makers in the Fisheries Education system. Then, among the Non-technical skills, skills such as Communication and interpersonal skills which are considered as the most highly necessary needs to be scrupulously included in the curriculum. With the Advent of the digital revolution, and as the students are also pro-digital generation, it is high time that the curriculum necessarily involves next generation computer

and IT skills to make the Fisheries graduates fully equipped for the industry requirements. Time is not far where any sector including Fisheries and Aquaculture would be solely dependent on Artificial intelligence, machine learning, data analytics, Internet of Things and so on. Therefore, it is wise to impart such futuristic skills in students to make them competent and also to improve the employability

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