

Choosing a college major based on your personality: What does the research say?

Information and advice for students and adults returning to school, as well as parents, counselors, faculty advisors, and education policymakers.

By Lawrence K. Jones, Ph.D., NCC



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Summary

Choose a college major based on your personality and interests.

That's what the research indicates. Major studies over the past ten years show that with a good match you are likely to:

- Earn higher grades
- Stick with your choice of major through graduation
- Graduate on time
- Be more satisfied and successful in your career

You don't want to ignore those findings. It could cost you dearly.

This "white paper" will help you understand the research findings and give you "takeaways" you can use in making a good decision.

I recommend these **five strategies**:

1. Take a scientifically valid interest inventory or career assessment that measures your Holland personality types
2. Use a valid list of majors organized by Holland personality types to identify those most likely to fit your personality
3. Learn about the environment for each major that interests you
4. Use similar strategies to choose a "career pathway" or career field
5. Make your choice using a 4-step decision-making process

Choosing a college major is one of the most important decisions you will make

The major or program of study you choose will likely affect which college or community college you attend. Once in that college, the major you chose determines the department you are in—the teachers and students you interact with. The culture and climate of this department, research shows, affects students’ learning, grades earned, satisfaction, and graduation (Porter & Umbach, *Research in Higher Education*, 2006, 47, 429–449).

According to a U. S. Department of Education study of students in 4-year colleges, **only 39 percent graduated in four years, 59 percent in six. About 40 percent dropout.** (National Center for Education Statistics, *Fast Facts*, nces.ed.gov).

The cost of dropping out, changing majors, and/or not graduating on time is high. An example—students who are working toward a bachelor’s degree lose in earnings, on average, \$57,000 (in 2019 dollars) for each additional year it takes to finish their degree (Allen & Robbins, *J. of Counseling Psychology*, 2010, 57, 23–35).

The research also shows that after graduation, the major you choose affects job stability and satisfaction, as well as career opportunities and rewards (Porter & Umbach, 2006; See [Is College Worth It?](#)).

So, unquestionably, choosing a major is one of the most important decisions you will make.

Good personality-major match



College Success
Higher Grades
Persistence
Graduation On Time

Should you consider your personality when you choose a major?

Actually, this is what most people already do (even though they may not be aware of it). Many studies demonstrate this (Astin, A. W., 1993, *What Matters in College: Four Critical Years Revisited*, Jossey-Bass).

Students who are artistically oriented, for example, are more likely to major in fine arts, music, theater, journalism and English. Holland personality types [see next page] predict the majors students choose.

Recent studies show that a good personality-major match is related to college success. Generally, the better the match the better students do.

Yes, there are other factors to consider in choosing a major, but personality-major match is one of the most important.

This paper will:

- Explore the research evidence
- Help you understand why this personality-major match affects college success
- Suggest strategies you can use to make a good match

First, some background to understand the research findings

John L. Holland's Theory of Careers

Most researchers investigating this area use Holland's theory of careers (Holland, J. L., 1997, *Making Vocational Choices, 3rd Ed.*, PAR). This is a very brief description, [more details are online](#). If you are already familiar with Holland's theory, you may want to skip to the next section.

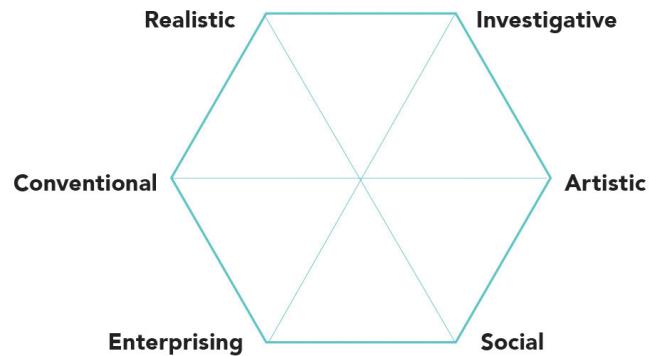


The six basic ideas of Holland's Theory

1. Most people can be classified as one of six personality types: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C).
2. People of the same personality working together create an environment that fits their type. For example, Social types create a Social environment;
3. There are six basic types of environments: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C);
4. People search for environments where they can use their skills and abilities and express their values and attitudes;
5. People who choose to study and work in an environment similar to their personality type are more likely to be successful and satisfied; and
6. How you act and feel depends to a large extent on your school or work environment.

Holland's hexagon

The hexagon shows the relationship between the personality types and environment types. There are three ways it shows this.



"The hexagon can predict how we act and feel when we are in a particular type of environment . . ."

1. Notice that the personality types closest to each other are more alike than those on the opposite side. If you are a Social type, for example, you are going to have more in common with persons who are Enterprising and Artistic than with those who are Realistic.
2. The same relationship holds true for environments. For example, Realistic work and school environments are least similar to Social environments.
3. Most important, the hexagon can predict how we act and feel when we are in a particular type of environment. You can see it in this story . . .

Maria—A true story

Maria was an Artistic type. It was near the end of her first year and she knew she had to choose a major. She was thinking of majoring in art. She knew the department environment—how students and faculty talked and dressed—their interests, attitudes, skills, and political views—**and she liked it.**

But she and her family had little money, and she was offered a scholarship to study accounting.

Maria chose accounting (Artistic personality type in a Conventional environment, opposite sides of the hexagon). The students and teachers in this department were primarily “Conventional”. Their talk, dress, interests, attitudes, skills, and political views were quite different from those in the Artistic environment—in many ways, the opposite of those in the art department.

It was a struggle for her to keep motivated. She felt she did not fit in. But she graduated and took a job as an accountant.

Several years later when I met her, she was in North Carolina State University’s School of Design finishing her Masters degree in Graphic Design. She was happy and looking forward to future in design.

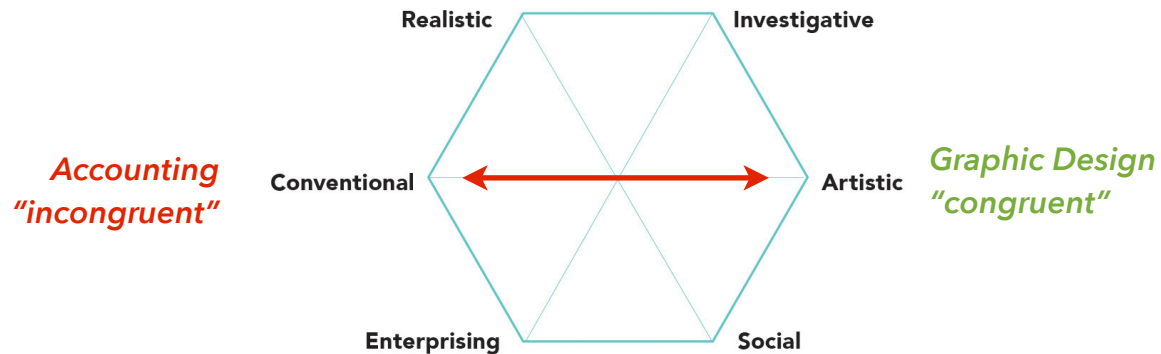
So, you can use the hexagon to predict how you are likely to act and feel in Holland’s six different environments.

Congruence (degree of match or “fit”)

Congruence is the word used in the theory to describe how well a personality type matches or “fits” a particular environment. In other words, how well is a person’s personality matched with his or her school or work environment? Is it compatible?

An Artistic type person in an Artistic environment is a **congruent** match. Maria’s choice of a major in accounting was an **incongruent** match.

[More about Holland’s theory.](#)



Personality-Environment research

Holland’s theory has many of the features of a good theory, and it has simulated well over a thousand research studies. Most scientists have focused on personality-work environment congruence, or “fit.”

“If individuals’ personality and the work environment of their job are congruent, the more satisfied and successful they will be . . .”

According to the theory, if individuals’ personality and the work environment of their job are congruent, the more satisfied and successful they will be.

And, the research evidence has generally supported this idea (Kristof-Brown, Zimmerman, & Johnson, *Personnel Psychology*, 51 (2005), 281-342). His theory is widely used by professional counselors in schools, colleges, and other settings.

More recently, researchers have turned to personality-major congruence (often called “interest-major congruence”). Does the match between students’ personality and their major predict success and satisfaction in college? We will discuss that next.

On a personal note

I had the opportunity to introduce Dr. Holland at a conference years ago. Of course, I was excited and looking forward to it. So, there I was in the wing of the stage waiting—well, he was a bit late—when he arrived he rushed by me to the podium to rousing round of applause—I was a little disappointed, of course. But, it was such a pleasure meeting him—witty, enthusiastic, smart. You can read a short biography [here](#). Be sure to read the excerpt from the award citation.

What does the research say?

Personality-Major match and college success

Researchers have primarily looked at three measures of college success:

1. Grade point average (GPA)
2. Persistence (whether students continue or dropout)
3. Graduating on time

Congruence (degree of match) and GPA

Does the match between students' personality and major affect their grades?

This question was investigated in an impressive study by Terence Tracey and Steven Robbins (*J. of Vocational Behavior*, 2006, 64-89). They followed 80,574 students in 87 colleges over a five-year period. Students' GPAs were examined at the end of their first, second, academic years and their overall GPA at graduation after five years.

The results showed that good grades are related to having a major close to one's interests/personality. Most impressively, they found that congruence predicted overall GPA after five years better than ACT scores.

They also checked to see if other factors might have affected the results, like size of the college, private vs. public, or characteristics of the students (gender, ethnic background, e.g.), academic aptitude (scores on the ACT test, which is like the SAT test)—and they made no difference. The results held up. The relation between personality-major congruence and GPA was positive and strong.

They concluded, “Presumably individuals with interests akin to the major find the content more interesting and thus spend more time involved. This involvement pays off in better grades.”

TAKEAWAY FOR YOU

You will earn better grades in college if you choose a major that fits your personality. Congruence matters.

Congruence and persistence in school

In the same study, Tracey and Robbins asked, “Does the match between personality and major predict students who stay enrolled in college over a five-year period? Do they persist?”

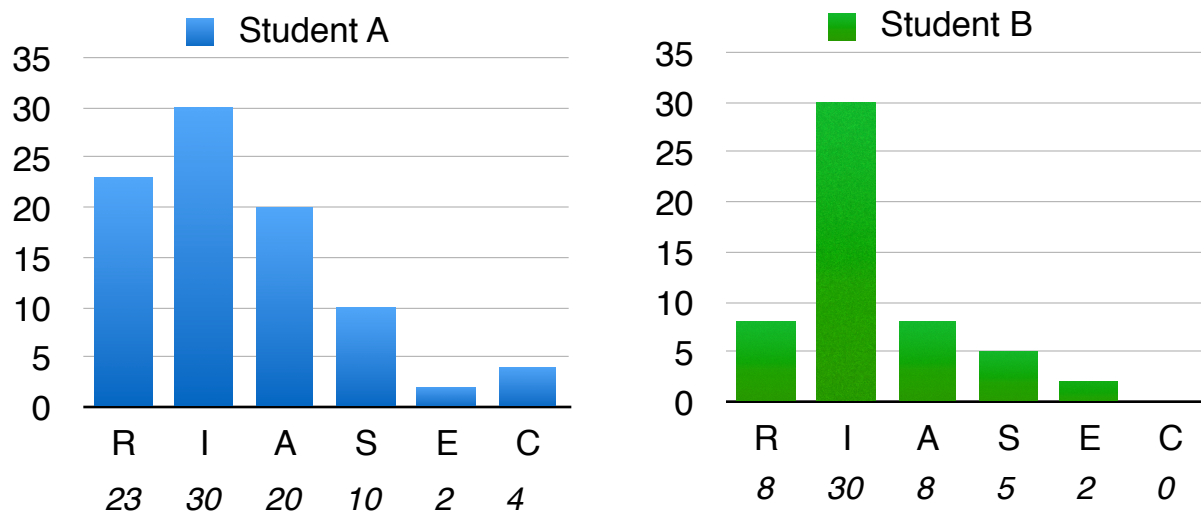
It included students who might have changed schools to continue their studies.

They found that congruence did not predict persistence overall, but it did when students’ “interest flexibility” was taken into account.

Interest flexibility refers to whether individuals like a wide variety of activities or only a few.

It turned out that congruence predicted persistence for those students who were low in interest flexibility. It didn’t for those high in flexibility. In other words, those who like relatively few activities need a closer fit with their environment if they are to be satisfied and stay enrolled in school.

To make “interest flexibility” more concrete, imagine two students. whose scores on a measure of Holland’s six personality types look like this,



Student A likes a wide variety of activities (Investigative, as well as Realistic and Artistic) and is high in interest flexibility.

For students like this, the match between personality and major does not predict whether they will stay in school or not. Personality-major congruence is much less important. They are likely to stay enrolled in a broader range of majors/ environments.

Student B's scores show someone with low interest flexibility (only Investigative). It's important for students like this to find a close match if they are to stay in school.

This is especially true for students who begin their first-year in school who have already chosen their major. How well students do in their first-year has a significant

effect on whether or not they graduate (Tracey & Robbins, J. of *Vocational Behavior*, 2006, 64-89).

A different question of persistence

“Does the match between students’ personality and major predict who will be in the same major three years after they start college?” This is the question ACT scientists Jeff Allen and Steve Robbins asked.

“How well students do in their first-year has a significant effect on whether or not they graduate.”

Does congruence predict those who change majors from those who don’t?

This massive, sophisticated study included 47,914 students in 25 colleges.

From the results, they concluded,

Our findings support Holland’s theory of vocational preferences and the proposition that students are more likely to flourish in academic environments that fit their personality types.

We now know that interests affect both choice of entering major and the likelihood of persisting in a major.” (p.75) (Allen & Robbins, *Research in Higher Education*, 2008, 49, 62–79).

TAKEAWAY FOR YOU

Consider your “interest flexibility.” Are you interested in a relatively few activities, compared to others your age? Are you more like Student B than Student A? If so, your choice of a major is more critical. An incongruent personality-major match is more likely to affect whether you change your major, dropout, or graduate.

All students need to be especially careful if you start a major or program of study in your first year. How well you do in that first year often has a big impact on your grades later.

Some colleges and universities require you to declare a major before you start. Community colleges expect this if you are choosing one of their shorter programs of study. Be careful—and make a good decision.

Congruence and graduating on time

“Does the match between students’ personality and major predict whether they graduate on time?” Jeff Allen and Steve Robbins pursued this question. They investigated the effect of personality-major congruence on whether students graduated in a “timely fashion.”

“Higher levels of congruence lead to a greater likelihood of timely graduation.”

This meant getting a bachelor’s degree at the end of the fourth year for students in a 4-year college, and for those in a 2-year school, it meant receiving an associate’s degree or completing a certificate program and the end of the second year.

Their study followed 3,072 students in 15 four-year colleges or universities and 788 students in 13 two-year community colleges.

The results showed that higher levels of congruence lead to a greater likelihood of attaining a degree in a timely fashion (Allen & Robbins, J. of Counseling Psychology, 2010, 57, 23-35).

TAKEAWAY FOR YOU

Matching your personality to your major is an important step toward graduating on time.

Limitations and acknowledgements

All scientific research has limitations and these studies are no exception. Each ends describing its limitations. The researchers often say, “These findings *suggest* . . .”

It is difficult to establish cause-and-effect when studying questions like these. You can’t randomly assign students, for example, to majors that do not fit their personality and others to ones that do to see what happens. It would be unethical. Another limitation is that the research is done with large groups and this may obscure important individual or subgroup differences.

Even so, we are fortunate to have these studies—and acknowledge the care, knowledge and skill of these scientists, as well as the commitment to research of organizations like [ACT](#) and [National Survey of Student Engagement](#).

Why does matching your personality to college majors affect college success?

Scientists develop and test theories to learn about our world—including learning about student success in college. It's a complex, challenging area to study and much is unknown.

Most scientists have been drawn to Holland's theory and use it as a starting point. The basic idea underlying this theory is:

“Behavior is determined by an interaction between personality and environment.”

It is assumed that your personality forms as a result of an interaction between you and your environment. As you develop a preference for certain activities and a dislike for others, interests crystallize, and you develop related skills and knowledge. You think and act in special ways. You begin to look for environments that satisfy your interests and values, that let you use your talents and skills, that reward you—and to avoid those environments that don't.



A likely “Realistic” work environment

Environments, according to the theory, tend to be “dominated” by people with certain personalities (R, I, A, S, E, and C) who surround themselves with people like themselves and seek out problems that match their interests, talents and world outlook. Perhaps you have noticed this in the different groups you have been in.

Consistency is a small wrinkle in this picture (smile). Individuals' personalities are not always what Holland calls "consistent." A few people combine in their personality types on the hexagon that are not closely related, even opposites like Realistic-Social. How do they choose a major? How does personality-major congruence affect them? [More about inconsistent personality patterns...](#)

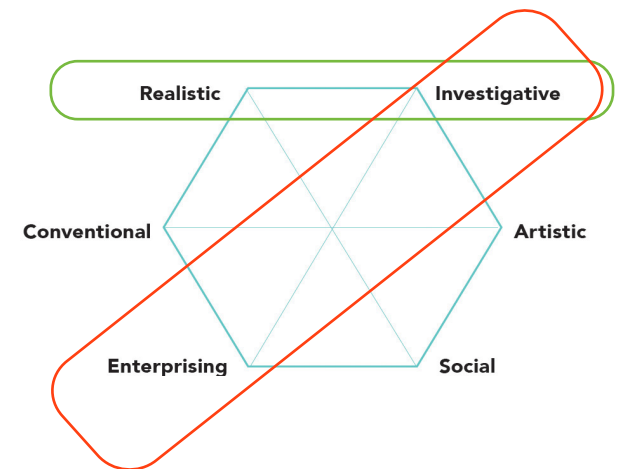
The same is true for environments.

How does the *consistency* of a college major-environment affect students' learning?"

For example, do Investigative "consistent" majors (like Oceanography or Forestry Sciences, both IR types) have a different impact on students' learning than "inconsistent" ones (like Marketing Research, IE, opposites on the hexagon)?

John Smart (Research in Higher Education, 2010, 468-482) found that they did in his study of 5,904 college seniors. They were asked, for example, to rate the extent their major had helped them in "analyzing quantitative problems." Seniors in Consistent Investigative major-environments rated their majors higher than those in Inconsistent Investigative majors.

In college, students "choose academic environments compatible with their personality types" and in turn "academic environments reward certain patterns of student abilities and interests" (p. 33) (Smart, J. C., Feldman, K. A., and Ethington, C. A., 2000, Academic Disciplines: Holland's Theory and the Study of College Students and Faculty, Vanderbilt University Press).



TAKEAWAY FOR YOU

On a scale of “consistency” most college major environments are near the high end; they are “consistent.” Others are toward the low end, like some interdisciplinary majors. Use the Holland hexagon as a touchstone. Ask yourself, “Where on the hexagon are the students and faculty likely to be?”

Generally, the better you fit with the people, culture, and demands of your major and its environment, the more interested in it you will be; the more time and effort you put into it; the more confidence you feel, the better grades you get; and the better recommendation you receive from your teachers.

Personality-career pathway match and school success

Does your school or college have you choose something called a “career pathway”, “career field,” or “career cluster”? Most schools do. If so, your choice could have a big effect on your grades, the college major you choose, and your career direction.

As we have seen “congruence matters”—the match between your personality and what you study can affect your grades, graduation, and more. The research shows this. It’s common sense:

The more you are interested in the courses you take; the more time and effort you put in; the more confidence you feel; and the better grades you get.

Choosing a career cluster or pathway that fits your personality is difficult. Why? Because they are NOT organized according to interests or personality type. They are organized according to “occupations and industries.” As a result, different personality types are found in a cluster. For example, the “Health Sciences” cluster includes both the Investigative and Conventional types, types that are very different from each other.

In choosing a cluster or pathway, you may find yourself taking courses that are not a good match with your personality; your grades may suffer as a result. Your choice may also keep you from taking courses in a different pathway that match your interests.

TAKEAWAY FOR YOU

Explore your options carefully and make a good decision (see strategies #4 and #5 on next pages).

5 strategies you can use to take advantage of these findings

1.

Take a *valid* interest inventory or career assessment that measures your resemblance to the six Holland personality types. It will help you answer, “Which of the Holland personality types am I most like?”

All of the research reported here was done with valid measures. The only way you can benefit is to use a valid measure. Examples: Career Key, Self-Directed Search, and the Strong Interest Inventory.

Most career measures on the Internet are not valid, including those that are top hits on Google. These pseudo measures—quizzes, profilers, sorters, and the like—can mislead you ([more on this](#)).

Some tips on your results:

- It is unlikely that your personality/interests will change significantly if you are 13 years or older. Tracey and Robbins followed 69,987 college bound students from the 8th to the 12th grades and found few changes, regardless of students’ gender or ethnic background. (*J. of Vocational Behavior*, 67 (2005) 335–364).
- Many find that there is no major difference in the scores for their highest and second highest personality types (or third). This is likely a sign of the “interest flexibility” discussed earlier. Use your scores as a starting point for exploring majors.
- Professional school and college counselors or career development facilitators are trained to help. It’s a good idea to consult with one.

2.

Use a “valid” list of majors organized by Holland personality type to identify those most likely to fit your personality. Judge how valid this list is by asking,

- Is the method used for classifying the majors described? Does it have a scientific basis? The findings for congruence only apply to majors that have been classified according to logical, scientific principles.
- Is the list comprehensive? The 2020 revision of the Classification of Instructional Programs (CIP) used by the U.S. and Canada lists more than 1400 majors and programs. Are many listed? You want more than just four or five options for your personality.
- Is the list up-to-date? Majors and programs of study change. New ones are being added, others dropped. The just released 2020 CIP revision includes more than 200 new majors. When was the list last updated?
- Is each major described? That’s a real plus. It will save you a lot of time.
- Visit [How to Choose a Major or Training Program](#) at our website for more.

3.

Learn about the environment for each of the majors that interest you.

- **Visit the department that offers the major.** Are the students and faculty people you are naturally attracted to? Do they share your interests, values, knowledge, and world outlook?

Use the U.S. Department of Education’s [College Navigator](#) to identify colleges that have majors that interest you.

- **Talk with people who have majored in your area of interest.** How do they describe the environment? What are they like? Are they compatible with you?

If the major that interests you leads to a particular career, talk with people who are working in it. Is their work environment one that fits you—your personality?

4.

Use the strategies described here in choosing a “career pathway” or “career field.” Your choice may affect the grades you earn, the college major you choose, and your career satisfaction.

- Use a valid career interest test that truly measures your Holland types.

Here’s what can go wrong if you don’t. The Career Clusters Interest Survey (CCIS) is used to measure students’ interests so they can match them with Career Clusters. It is widely used in schools across the U.S. Several states have adopted it, like Oklahoma and Arkansas.

But, no one investigated the question, “Does the CCIS truly measure interests?”—until 2010. This study found that the CCIS does not measure three of the six Holland types—Conventional Realistic, and Investigative (Prime & Tracey, *J. of Career Assessment*, 2010, 18, 177–188). In other words, thousands of students are being matched with career clusters that do not fit their interests or personality.

- Use a “valid” list of career clusters or pathways that uses a science-based system for organizing them according to the Holland types.
- Learn more at [Choose a Career Cluster, Career Field, or Career Pathway](#). Download a map showing how these are related to interests, the Holland personality types, and occupations.

5.

Make a good decision. It takes self-discipline but it's worth it. You are least likely to have regrets if you:

- Consider all your alternatives
- Examine the consequences—pros and cons
- Get as much as information as you can about your options
- Plan how you will carry out your choice (for more about [decision-making...](#))

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About the author

Lawrence K. Jones, Ph.D., NCC is *Professor Emeritus* in the College of Education at North Carolina State University, where he trained professional counselors for schools, colleges, and agencies—specializing in career counseling and guidance. He received his master’s degree from the University of Pennsylvania and earned his doctorate in counseling psychology at the University of Missouri.



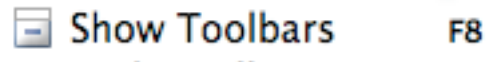
A recipient of the national award for professionalism from the American Counseling Association, he has developed four career guidance instruments used by over 25 million people worldwide since 1997: *Career Key Discovery*, *The Self-Employment Key*, *Career Decision Profile*, and *Occ-U-Sort*.

[More about his publications](#)

Dr. Jones is the author of two popular websites, Career Key (www.careerkey.org), and Self-Employment Key (www.self-employmentkey.org). He has written several popular eBooks, including [Match Up! Your Personality to College Majors](#) with co-author Juliet Wehr Jones, GCDF.

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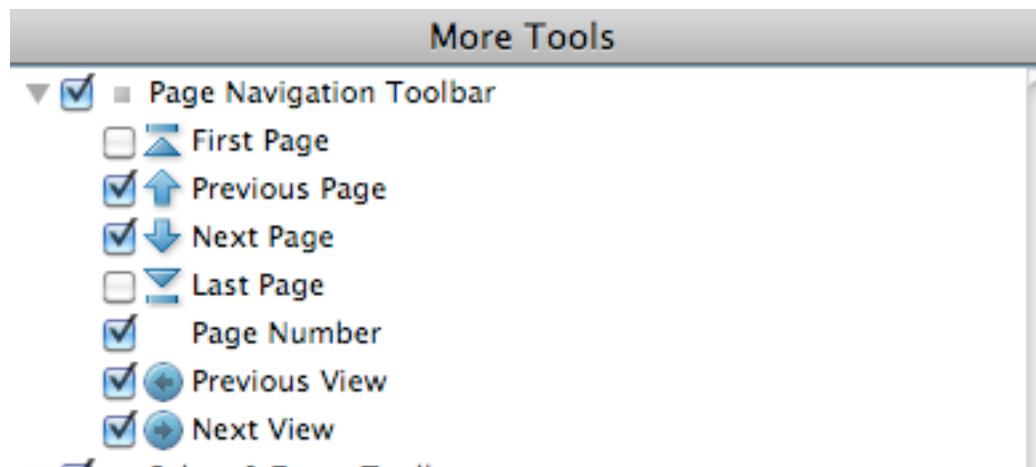


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